

# BEAMS, HEADERS, AND COLUMNS



Featuring Trus Joist<sup>®</sup> TimberStrand<sup>®</sup> LSL,  
Microllam<sup>®</sup> LVL, and Parallam<sup>®</sup> PSL

- Uniform and Predictable
- Minimal Bowing, Twisting, and Shrinking
- Strong and Straight
- Limited Product Warranty





The products in this guide are readily available through our nationwide network of distributors and dealers. For more information on other applications or other Trus Joist® products, contact your Weyerhaeuser representative.

This guide is for use with NBCC 2010, NBCC 2015, CSA O86-09 and CSA O86-14.

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## Why Choose Trus Joist® Beams, Columns, and Headers?

- Reliable performance
- Consistent quality and dependable uniformity
- Flexible solutions for your beam and header needs
- Backed by a limited product warranty

Using advanced technology, Weyerhaeuser manufactures engineered lumber that is consistently straight and strong, and that resists bowing, twisting, and shrinking. That means less waste, easier installation, and higher design values for starters; plus fewer callbacks, shorter cycle times, more design flexibility, and lower overall installed cost in the end. Trus Joist® TimberStrand® LSL, Microllam® LVL, and Parallam® PSL are structural solutions you can count on—guaranteed.

## This guide features Trus Joist® engineered lumber in the following widths and depths:

### TimberStrand® LSL

**1.55E TimberStrand® LSL** header and beam sizes:

Widths: 1¾" and 3½"

Depths: 9½", 11⅞", 14", and 16"

### Microllam® LVL

**2.0E Microllam® LVL** header and beam sizes:

Width: 1¾"

Depths: 5½", 7¼", 9¼", 9½", 11¼", 11⅞", 14", 16", 18", and 20"

### Parallam® PSL

**2.2E Parallam® PSL** header and beam sizes:

Widths: 3½", 5¼", and 7"

Depths: 9¼", 9½", 11¼", 11⅞", 14", 16", and 19"

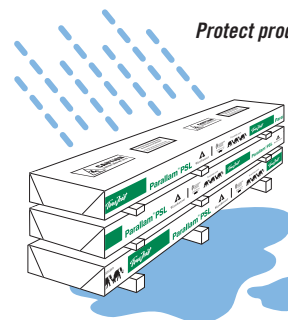
**1.8E Parallam® PSL** column and post sizes:

3½" x 3½"    3½" x 5¼"    3½" x 7"    5¼" x 5¼"    5¼" x 7"    7" x 7"

**For deeper depth Parallam® PSL beams, see the Trus Joist® 2.2E Parallam® PSL Deep Beam Technical Resource Sheet, #TJ-7501, or contact your Weyerhaeuser representative.**

**Grades shown are available in Western Canada; some sizes may not be available in your region.**

## PRODUCT STORAGE



Protect product from sun and water

**CAUTION:**  
Wrap is slippery when wet or icy

Align stickers (2x3 or larger)  
directly over support blocks

Use support blocks (6x6 or larger)  
at 10' on-centre to keep bundles  
out of mud and water

# STRUCTURAL SOLUTIONS

## Trus Joist® TimberStrand® Laminated Strand Lumber (LSL)

- One-piece members reduce labor time
- Every piece is straight and strong
- Unique properties allow you to drill larger holes through 1.55E TimberStrand® LSL. See **Allowable Holes** on page 12.

Code Evaluations: See **CCMC 12627-R**



## Trus Joist® Microllam® Laminated Veneer Lumber (LVL)

- Can easily be built up on site to reduce heavy lifting
- Offers reliable and economical solutions for beam and header applications
- Manufacturing process minimizes many of the natural inconsistencies found in wood

Code Evaluations: See **CCMC 08675-R**



## Trus Joist® Parallam® Parallel Strand Lumber (PSL)

- Allows long spans for open floor plans without intermediate posts or columns
- Has warm, unique grain that is perfect for applications with exposed beams
- Provides ideal solutions for cantilever and multi-span applications
- Solid sections save time on site assembly

Code Evaluations: See **CCMC 11161-R**



## General Assumptions for Products Shown in this Guide

- Specified strengths and factored resistances are based on Limit States Design per CSA O86.
- Lateral support is required at bearing and along the span at 24" on-centre, maximum.
- Bearing lengths are based on each product's bearing resistance for applicable grade and orientation.
- All members 7¼" and less in depth are restricted to a maximum deflection of 5/16".
- Beams that are 1¾" x 16" and deeper require multiple plies. Some exceptions allowed when using Weyerhaeuser software.
- No camber.
- Beams and columns must remain straight to within 5L²/4608 (in.) of true alignment. L is the unrestrained length of the member in feet.

For applications not covered in this guide, contact your Weyerhaeuser representative.

**See pages 14–16 for multiple-member beam connections.**

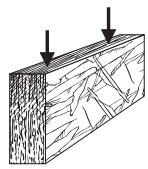
**TimberStrand® LSL, Microllam® LVL, and untreated Parallam® PSL are intended for dry-use applications**

# DESIGN PROPERTIES

## Factored Resistances<sup>(1)</sup> (Standard Term)

| Grade                    | Width | Design Property                       | Depth |       |        |        |        |        |        |         |        |         |        |
|--------------------------|-------|---------------------------------------|-------|-------|--------|--------|--------|--------|--------|---------|--------|---------|--------|
|                          |       |                                       | 5½"   | 7¼"   | 9¼"    | 9½"    | 11¼"   | 11¾"   | 14"    | 16"     | 18"    | 19"     | 20"    |
| <b>TimberStrand® LSL</b> |       |                                       |       |       |        |        |        |        |        |         |        |         |        |
| 1.55E                    | 1¾"   | Factored Moment Resistance (ft-lbs)   |       |       |        | 8,665  |        | 13,260 | 18,155 | 23,425  |        |         |        |
|                          |       | Factored Shear Resistance (lbs)       |       |       |        | 5,735  |        | 7,170  | 8,455  | 9,660   |        |         |        |
|                          |       | Moment of Inertia (in. <sup>4</sup> ) |       |       |        | 125    |        | 244    | 400    | 597     |        |         |        |
|                          |       | Weight (plf)                          |       |       |        | 5.2    |        | 6.5    | 7.7    | 8.8     |        |         |        |
|                          | 3½"   | Factored Moment Resistance (ft-lbs)   |       |       |        | 17,325 |        | 26,525 | 36,310 | 46,850  |        |         |        |
|                          |       | Factored Shear Resistance (lbs)       |       |       |        | 11,470 |        | 14,340 | 16,905 | 19,320  |        |         |        |
|                          |       | Moment of Inertia (in. <sup>4</sup> ) |       |       |        | 250    |        | 488    | 800    | 1,195   |        |         |        |
|                          |       | Weight (plf)                          |       |       |        | 10.4   |        | 13.0   | 15.3   | 17.5    |        |         |        |
| <b>Microllam® LVL</b>    |       |                                       |       |       |        |        |        |        |        |         |        |         |        |
| 2.0E                     | 1¾"   | Factored Moment Resistance (ft-lbs)   | 3,535 | 5,915 | 9,315  | 9,790  | 13,420 | 14,845 | 20,175 | 25,875  | 32,230 |         | 39,220 |
|                          |       | Factored Shear Resistance (lbs)       | 3,060 | 4,035 | 5,150  | 5,285  | 6,260  | 6,610  | 7,790  | 8,905   | 10,015 |         | 11,130 |
|                          |       | Moment of Inertia (in. <sup>4</sup> ) | 24    | 56    | 115    | 125    | 208    | 244    | 400    | 597     | 851    |         | 1,167  |
|                          |       | Weight (plf)                          | 2.8   | 3.7   | 4.7    | 4.8    | 5.7    | 6.1    | 7.1    | 8.2     | 9.2    |         | 10.2   |
| <b>Parallam® PSL</b>     |       |                                       |       |       |        |        |        |        |        |         |        |         |        |
| 2.2E                     | 3½"   | Factored Moment Resistance (ft-lbs)   |       |       | 20,655 | 21,720 | 29,890 | 33,105 | 45,180 | 58,145  |        | 80,445  |        |
|                          |       | Factored Shear Resistance (lbs)       |       |       | 10,490 | 10,775 | 12,760 | 13,465 | 15,875 | 18,145  |        | 21,545  |        |
|                          |       | Moment of Inertia (in. <sup>4</sup> ) |       |       | 231    | 250    | 415    | 488    | 800    | 1,195   |        | 2,001   |        |
|                          |       | Weight (plf)                          |       |       | 10.1   | 10.4   | 12.3   | 13.0   | 15.3   | 17.5    |        | 20.8    |        |
|                          | 5¼"   | Factored Moment Resistance (ft-lbs)   |       |       | 30,980 | 32,580 | 44,840 | 49,660 | 67,775 | 87,220  |        | 120,665 |        |
|                          |       | Factored Shear Resistance (lbs)       |       |       | 15,735 | 16,160 | 19,135 | 20,200 | 23,815 | 27,215  |        | 32,320  |        |
|                          |       | Moment of Inertia (in. <sup>4</sup> ) |       |       | 346    | 375    | 623    | 733    | 1,201  | 1,792   |        | 3,001   |        |
|                          |       | Weight (plf)                          |       |       | 15.2   | 15.6   | 18.5   | 19.5   | 23.0   | 26.3    |        | 31.2    |        |
|                          | 7"    | Factored Moment Resistance (ft-lbs)   |       |       | 41,305 | 43,440 | 59,785 | 66,215 | 90,365 | 116,290 |        | 160,890 |        |
|                          |       | Factored Shear Resistance (lbs)       |       |       | 20,980 | 21,545 | 25,515 | 26,935 | 31,750 | 36,290  |        | 43,090  |        |
|                          |       | Moment of Inertia (in. <sup>4</sup> ) |       |       | 462    | 500    | 831    | 977    | 1,601  | 2,389   |        | 4,001   |        |
|                          |       | Weight (plf)                          |       |       | 20.2   | 20.8   | 24.6   | 26.0   | 30.6   | 35.0    |        | 41.6    |        |

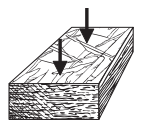
Beam Orientation



Column Orientation



Plank Orientation



(1) For product in beam orientation, unless otherwise noted.

## Specified Strengths<sup>(1)</sup> and Moduli of Elasticity (Standard Term)

| Grade                    | Orientation | G<br>Shear Modulus<br>of Elasticity<br>(psi) | E<br>Modulus of<br>Elasticity <sup>(2)</sup><br>(psi) | f <sub>b</sub><br>Flexural<br>Stress <sup>(3)</sup><br>(psi) | f <sub>t</sub><br>Tension<br>Stress <sup>(4)</sup><br>(psi) | f <sub>c⊥</sub><br>Compression<br>Perpendicular<br>to Grain <sup>(5)</sup><br>(psi) | f <sub>c  </sub><br>Compression<br>Parallel to Grain<br>(psi) | f <sub>v</sub><br>Horizontal Shear<br>Parallel to Grain<br>(psi) | SG<br>Equivalent<br>Specific<br>Gravity <sup>(6)</sup> |
|--------------------------|-------------|--|---|--|---|---|---|--|--|
| <b>TimberStrand® LSL</b> |             |  |   |  |   |   |   |  |  |
| 1.55E                    | Beam        | 96,875                                       | 1.55 x 10 <sup>6</sup>                                | 4,295  | 1,975 <sup>(8)</sup>  | 1,635   | 3,465   | 575 <sup>(8)</sup>   | 0.50 <sup>(7)</sup>                                    |
| <b>Microllam® LVL</b>    |             |  |   |  |   |   |   |  |  |
| 2.0E                     | Beam        | 125,000                                      | 2.0 x 10 <sup>6</sup>                                 | 4,805  | 2,870   | 1,365   | 4,005   | 530  | 0.50   |
| <b>Parallam® PSL</b>     |             |  |   |  |   |   |   |  |  |
| 1.8E                     | Column      | 112,500                                      | 1.8 x 10 <sup>6</sup>                                 | 4,435 <sup>(9)</sup>   | 3,245   | 990 <sup>(9)</sup>  | 3,990   | 355 <sup>(9)</sup>   | 0.50   |
| 2.2E                     | Beam        | 137,500                                      | 2.2 x 10 <sup>6</sup>                                 | 5,360  | 3,750   | 1,135   | 4,630 <sup>(10)</sup>   | 540  | 0.50   |

(1) To obtain factored resistances, apply the appropriate formulae from CSA O86 to the specified strengths shown.

(2) To properly calculate deflections for the full range of typical SCL span and loading applications, bending and shear deflection must be considered. Use the following equation for simple span, uniformly loaded beams:

$$\Delta = \frac{270 wL^4}{Ebd^3} + \frac{28.8 wL^2}{Ebd}$$

Where:  $\Delta$  = deflection (in.)     $w$  = uniform load (plf)  
 $L$  = span (feet)     $b$  = beam thickness (in.)  
 $d$  = beam depth (in.)     $E$  = modulus of elasticity (psi)

For other span and loading conditions, use engineering mechanics to account for both bending and shear deflection or use Forte®WEB software.

(3) For 12" depth. For other depths, multiply f<sub>b</sub> by the appropriate factor as follows:

- For TimberStrand® LSL, multiply by  $\left[\frac{12}{d}\right]^{0.092}$
- For Microllam® LVL, multiply by  $\left[\frac{12}{d}\right]^{0.136}$
- For Parallam® PSL, multiply by  $\left[\frac{12}{d}\right]^{0.111}$

**TimberStrand® LSL, Microllam® LVL, and untreated Parallam® PSL are intended for dry-use applications**

(4) f<sub>t</sub> has been adjusted to reflect the volume effects for most standard applications.

(5) f<sub>c⊥</sub> must not be increased for duration of load.

(6) For lateral connection design only.

(7) Specific gravity of 0.58 may be used for bolts installed perpendicular to face and loaded perpendicular to grain.

(8) Value accounts for large hole capabilities. See **Allowable Holes** on page 12.

(9) Value shown is for plank orientation.

(10) For column applications, use a specified strength of 800 psi. Alternatively, refer to CCMC 11161-R, Table 4.4.1, footnote 9.

# FLOOR AND/OR SNOW LOAD TABLES

## How to Use This Table

1. Calculate the factored and unfactored total load (TL) (neglect beam weight) and the unfactored live load (LL) on the beam or header in pounds per linear foot (plf).
2. Select appropriate **Span** (centre-to-centre of bearing).
3. Scan horizontally to find the proper width and a depth that has a capacity that meets or exceeds actual loads.
4. Review bearing length requirements to ensure adequacy.

## General Notes

- Table is based on:
  - Uniform loads (beam weight considered).
  - More restrictive of simple or continuous span.
  - Deflection criteria of L/360 live load (LL) and L/240 total load (TL).
- For a live load deflection limit of L/480, multiply **Unfactored Resistance (LL)** by 0.75. For a total load limit of L/180 multiply **Unfactored Resistance (TL)** by 1.33. The resulting loads must not exceed the **Total Factored Resistance** shown.
- For continuous spans, ratio of short span to long span should be 0.4 or greater to prevent uplift.

Also **General Assumptions** on page 3.

## 1.55E TimberStrand® LSL: Floor and/or Snow—Standard Term (PLF)

| Span   | Condition                   | 1½" Width |          |          | 3½" Width |          |          |          | 5¼" Width (2- or 3-ply) |          |          |          |
|--------|-----------------------------|-----------|----------|----------|-----------|----------|----------|----------|-------------------------|----------|----------|----------|
|        |                             | 9½"       | 11½"     | 14"      | 9½"       | 11½"     | 14"      | 16"      | 9½"                     | 11½"     | 14"      | 16"      |
| 4'     | Unfactored Resistance (LL)  | *         | *        | *        | *         | *        | *        | *        | *                       | *        | *        | *        |
|        | Unfactored Resistance (TL)  | *         | *        | *        | *         | *        | *        | *        | *                       | *        | *        | *        |
|        | Total Factored Resistance   | 3,350     | 4,738    | 5,140    | 6,701     | 9,477    | 10,278   | 10,278   | 10,052                  | 14,215   | 15,417   | 15,417   |
|        | Min. End/Int. Bearing (in.) | 2.9/7.3   | 4.1/10.4 | 4.5/11.3 | 2.9/7.3   | 4.1/10.4 | 4.5/11.3 | 4.5/11.3 | 2.9/7.3                 | 4.1/10.4 | 4.5/11.3 | 4.5/11.3 |
| 5'     | Unfactored Resistance (LL)  | 1,658     | *        | *        | 3,316     | *        | *        | *        | 4,975                   | *        | *        | *        |
|        | Unfactored Resistance (TL)  | *         | *        | *        | *         | *        | *        | *        | *                       | *        | *        | *        |
|        | Total Factored Resistance   | 2,451     | 3,349    | 4,110    | 4,903     | 6,698    | 8,218    | 8,218    | 7,354                   | 10,047   | 12,327   | 12,327   |
|        | Min. End/Int. Bearing (in.) | 2.7/6.7   | 3.7/9.2  | 4.5/11.3 | 2.7/6.7   | 3.7/9.2  | 4.5/11.3 | 4.5/11.3 | 2.7/6.7                 | 3.7/9.2  | 4.5/11.3 | 4.5/11.3 |
| 6'     | Unfactored Resistance (LL)  | 1,048     | *        | *        | 2,097     | *        | *        | *        | 3,146                   | *        | *        | *        |
|        | Unfactored Resistance (TL)  | *         | *        | *        | *         | *        | *        | *        | *                       | *        | *        | *        |
|        | Total Factored Resistance   | 1,918     | 2,589    | 3,262    | 3,837     | 5,178    | 6,524    | 6,845    | 5,756                   | 7,767    | 9,787    | 10,267   |
|        | Min. End/Int. Bearing (in.) | 2.5/6.3   | 3.4/8.5  | 4.3/10.7 | 2.5/6.3   | 3.4/8.5  | 4.3/10.7 | 4.5/11.3 | 2.5/6.3                 | 3.4/8.5  | 4.3/10.7 | 4.5/11.3 |
| 8'     | Unfactored Resistance (LL)  | 487       | 886      | 1,352    | 974       | 1,773    | 2,705    | *        | 1,462                   | 2,660    | 4,058    | *        |
|        | Unfactored Resistance (TL)  | 725       | *        | *        | 1,451     | *        | *        | *        | 2,177                   | *        | *        | *        |
|        | Total Factored Resistance   | 1,076     | 1,649    | 2,195    | 2,152     | 3,299    | 4,390    | 5,128    | 3,229                   | 4,948    | 6,586    | 7,692    |
|        | Min. End/Int. Bearing (in.) | 1.9/4.7   | 2.9/7.2  | 3.9/9.6  | 1.9/4.7   | 2.9/7.2  | 3.9/9.6  | 4.5/11.3 | 1.9/4.7                 | 2.9/7.2  | 3.9/9.6  | 4.5/11.3 |
| 9'-6"  | Unfactored Resistance (LL)  | 302       | 560      | 870      | 605       | 1,121    | 1,740    | 2,456    | 907                     | 1,681    | 2,610    | 3,684    |
|        | Unfactored Resistance (TL)  | 448       | *        | *        | 897       | *        | *        | *        | 1,346                   | *        | *        | *        |
|        | Total Factored Resistance   | 761       | 1,167    | 1,599    | 1,522     | 2,334    | 3,199    | 4,130    | 2,284                   | 3,502    | 4,799    | 6,196    |
|        | Min. End/Int. Bearing (in.) | 1.6/4     | 2.4/6.1  | 3.3/8.3  | 1.6/4     | 2.4/6.1  | 3.3/8.3  | 4.3/10.8 | 1.6/4                   | 2.4/6.1  | 3.3/8.3  | 4.3/10.8 |
| 10'    | Unfactored Resistance (LL)  | 261       | 487      | 760      | 523       | 974      | 1,520    | 2,154    | 785                     | 1,462    | 2,280    | 3,232    |
|        | Unfactored Resistance (TL)  | 387       | 724      | *        | 775       | 1,449    | *        | *        | 1,162                   | 2,174    | *        | *        |
|        | Total Factored Resistance   | 686       | 1,052    | 1,442    | 1,373     | 2,105    | 2,885    | 3,725    | 2,059                   | 3,158    | 4,328    | 5,588    |
|        | Min. End/Int. Bearing (in.) | 1.5/3.8   | 2.3/5.8  | 3.2/7.9  | 1.5/3.8   | 2.3/5.8  | 3.2/7.9  | 4.1/10.2 | 1.5/3.8                 | 2.3/5.8  | 3.2/7.9  | 4.1/10.2 |
| 12'    | Unfactored Resistance (LL)  | 155       | 293      | 464      | 311       | 587      | 928      | 1,334    | 467                     | 881      | 1,393    | 2,001    |
|        | Unfactored Resistance (TL)  | 228       | 434      | 688      | 456       | 868      | 1,377    | *        | 685                     | 1,302    | 2,066    | *        |
|        | Total Factored Resistance   | 474       | 728      | 999      | 949       | 1,457    | 1,998    | 2,580    | 1,424                   | 2,185    | 2,997    | 3,871    |
|        | Min. End/Int. Bearing (in.) | 1.5/3.5   | 1.9/4.8  | 2.6/6.6  | 1.5/3.5   | 1.9/4.8  | 2.6/6.6  | 3.4/8.5  | 1.5/3.5                 | 1.9/4.8  | 2.6/6.6  | 3.4/8.5  |
| 14'    | Unfactored Resistance (LL)  | 99        | 189      | 302      | 199       | 379      | 605      | 877      | 299                     | 569      | 907      | 1,316    |
|        | Unfactored Resistance (TL)  | 144       | 278      | 446      | 288       | 556      | 892      | 1,298    | 433                     | 834      | 1,338    | 1,948    |
|        | Total Factored Resistance   | 347       | 533      | 731      | 694       | 1,066    | 1,462    | 1,890    | 1,041                   | 1,599    | 2,194    | 2,835    |
|        | Min. End/Int. Bearing (in.) | 1.5/3.5   | 1.7/4.1  | 2.3/5.7  | 1.5/3.5   | 1.7/4.1  | 2.3/5.7  | 2.9/7.3  | 1.5/3.5                 | 1.7/4.1  | 2.3/5.7  | 2.9/7.3  |
| 16'-6" | Unfactored Resistance (LL)  | 61        | 118      | 189      | 123       | 236      | 379      | 555      | 185                     | 354      | 569      | 832      |
|        | Unfactored Resistance (TL)  | 87        | 170      | 277      | 174       | 341      | 554      | 815      | 262                     | 512      | 831      | 1,222    |
|        | Total Factored Resistance   | 248       | 381      | 523      | 496       | 763      | 1,047    | 1,354    | 744                     | 1,144    | 1,571    | 2,032    |
|        | Min. End/Int. Bearing (in.) | 1.5/3.5   | 1.5/3.5  | 1.9/4.8  | 1.5/3.5   | 1.5/3.5  | 1.9/4.8  | 2.5/6.2  | 1.5/3.5                 | 1.5/3.5  | 1.9/4.8  | 2.5/6.2  |
| 18'-6" | Unfactored Resistance (LL)  | 44        | 84       | 136      | 88        | 169      | 273      | 401      | 132                     | 254      | 410      | 601      |
|        | Unfactored Resistance (TL)  | 60        | 120      | 197      | 121       | 241      | 395      | 584      | 182                     | 362      | 592      | 876      |
|        | Total Factored Resistance   | 196       | 301      | 414      | 392       | 603      | 829      | 1,073    | 588                     | 905      | 1,244    | 1,609    |
|        | Min. End/Int. Bearing (in.) | 1.5/3.5   | 1.5/3.5  | 1.7/4.3  | 1.5/3.5   | 1.5/3.5  | 1.7/4.3  | 2.2/5.5  | 1.5/3.5                 | 1.5/3.5  | 1.7/4.3  | 2.2/5.5  |
| 20'    | Unfactored Resistance (LL)  |           | 67       | 109      | 70        | 135      | 218      | 320      | 105                     | 202      | 327      | 481      |
|        | Unfactored Resistance (TL)  |           | 94       | 156      | 94        | 189      | 312      | 463      | 142                     | 284      | 468      | 695      |
|        | Total Factored Resistance   |           | 257      | 353      | 333       | 514      | 707      | 915      | 500                     | 771      | 1,060    | 1,372    |
|        | Min. End/Int. Bearing (in.) |           | 1.5/3.5  | 1.6/4    | 1.5/3.5   | 1.5/3.5  | 1.6/4    | 2/5.1    | 1.5/3.5                 | 1.5/3.5  | 1.6/4    | 2/5.1    |

\* Indicates **Total Factored Resistance** value controls.

# FLOOR AND/OR SNOW LOAD TABLES

## How to Use This Table

1. Calculate the factored and unfactored total load (TL) (neglect beam weight) and the unfactored live load (LL) on the beam or header in pounds per linear foot (plf).
2. Select appropriate **Span** (centre-to-centre of bearing).
3. Scan horizontally to find the proper width and a depth that has a capacity that meets or exceeds actual loads.
4. Review bearing length requirements to ensure adequacy.

Also see **General Notes** on page 7.

## 2.OE Microllam® LVL: Floor and/or Snow—Standard Term (PLF)

| Span   | Condition                   | 1¾" Width |         |         |         |         |         |          | 3½" Width (2-ply) |         |         |         |         |         |          |
|--------|-----------------------------|-----------|---------|---------|---------|---------|---------|----------|-------------------|---------|---------|---------|---------|---------|----------|
|        |                             | 5½"       | 7¼"     | 9¼"     | 9½"     | 11¼"    | 11½"    | 14"      | 5½"               | 7¼"     | 9¼"     | 9½"     | 11¼"    | 11½"    | 14"      |
| 6'     | Unfactored Resistance (LL)  | 305       | 660     | *       | *       | *       | *       | *        | 611               | 1,319   | *       | *       | *       | *       | *        |
|        | Unfactored Resistance (TL)  | 455       | *       | *       | *       | *       | *       | *        | 911               | *       | *       | *       | *       | *       |          |
|        | Total Factored Resistance   | 782       | 1,278   | 1,722   | 1,781   | 2,219   | 2,386   | 2,859    | 1,564             | 2,556   | 3,444   | 3,562   | 4,438   | 4,773   | 5,713    |
|        | Min. End/Int. Bearing (in.) | 1.5/3.5   | 2/5     | 2.7/6.8 | 2.8/7   | 3.5/8.7 | 3.8/9.4 | 4.5/11.3 | 1.5/3.5           | 2/5     | 2.7/6.8 | 2.8/7   | 3.5/8.7 | 3.8/9.4 | 4.5/11.3 |
| 8'     | Unfactored Resistance (LL)  | 134       | 296     | 585     | 629     | 992     | *       | *        | 267               | 591     | 1,169   | 1,258   | 1,985   | *       | *        |
|        | Unfactored Resistance (TL)  | 154       | 343     | *       | *       | *       | *       | *        | 308               | 686     | *       | *       | *       | *       | *        |
|        | Total Factored Resistance   | 438       | 735     | 1,159   | 1,218   | 1,534   | 1,640   | 2,024    | 877               | 1,470   | 2,318   | 2,436   | 3,068   | 3,280   | 4,047    |
|        | Min. End/Int. Bearing (in.) | 1.5/3.5   | 1.5/3.9 | 2.4/6.1 | 2.6/6.4 | 3.2/8.1 | 3.4/8.6 | 4.3/10.6 | 1.5/3.5           | 1.5/3.9 | 2.4/6.1 | 2.6/6.4 | 3.2/8.1 | 3.4/8.6 | 4.3/10.6 |
| 9'-6"  | Unfactored Resistance (LL)  | 80        | 178     | 362     | 390     | 624     | 723     | *        | 160               | 357     | 724     | 781     | 1,248   | 1,447   | *        |
|        | Unfactored Resistance (TL)  | 77        | 175     | 539     | 581     | *       | *       | *        | 154               | 349     | 1,077   | 1,162   | *       | *       | *        |
|        | Total Factored Resistance   | 310       | 520     | 820     | 862     | 1,182   | 1,308   | 1,624    | 620               | 1,040   | 1,640   | 1,724   | 2,365   | 2,616   | 3,248    |
|        | Min. End/Int. Bearing (in.) | 1.5/3.5   | 1.5/3.5 | 2.1/5.1 | 2.2/5.4 | 3/7.4   | 3.3/8.2 | 4.1/10.1 | 1.5/3.5           | 1.5/3.5 | 2.1/5.1 | 2.2/5.4 | 3/7.4   | 3.3/8.2 | 4.1/10.1 |
| 10'    | Unfactored Resistance (LL)  | 65        | 146     | 313     | 338     | 542     | 629     | 981      | 131               | 292     | 627     | 676     | 1,084   | 1,258   | 1,961    |
|        | Unfactored Resistance (TL)  | 62        | 142     | 465     | 502     | *       | *       | *        | 125               | 285     | 931     | 1,004   | *       | *       | *        |
|        | Total Factored Resistance   | 279       | 469     | 739     | 777     | 1,066   | 1,180   | 1,524    | 559               | 937     | 1,479   | 1,555   | 2,133   | 2,360   | 3,047    |
|        | Min. End/Int. Bearing (in.) | 1.5/3.5   | 1.5/3.5 | 2/4.9   | 2/5.1   | 2.8/7   | 3.1/7.8 | 4/10     | 1.5/3.5           | 1.5/3.5 | 2/4.9   | 2/5.1   | 2.8/7   | 3.1/7.8 | 4/10     |
| 12'    | Unfactored Resistance (LL)  | 32        | 72      | 186     | 201     | 326     | 379     | 599      | 64                | 143     | 372     | 402     | 651     | 758     | 1,198    |
|        | Unfactored Resistance (TL)  | 29        | 68      | 274     | 297     | 483     | 563     | *        | 58                | 136     | 549     | 593     | 965     | 1,125   | *        |
|        | Total Factored Resistance   | 193       | 324     | 512     | 538     | 738     | 817     | 1,112    | 386               | 648     | 1,023   | 1,076   | 1,477   | 1,634   | 2,224    |
|        | Min. End/Int. Bearing (in.) | 1.5/3.5   | 1.5/3.5 | 1.6/4.1 | 1.7/4.3 | 2.3/5.9 | 2.6/6.5 | 3.5/8.8  | 1.5/3.5           | 1.5/3.5 | 1.6/4.1 | 1.7/4.3 | 2.3/5.9 | 2.6/6.5 | 3.5/8.8  |
| 14'    | Unfactored Resistance (LL)  |           | 39      | 119     | 129     | 210     | 245     | 390      | 35                | 78      | 238     | 257     | 420     | 490     | 781      |
|        | Unfactored Resistance (TL)  |           | 35      | 174     | 188     | 309     | 361     | *        | 29                | 71      | 348     | 376     | 618     | 723     | *        |
|        | Total Factored Resistance   |           | 237     | 374     | 394     | 541     | 598     | 814      | 282               | 474     | 749     | 787     | 1,081   | 1,197   | 1,629    |
|        | Min. End/Int. Bearing (in.) |           | 1.5/3.5 | 1.5/3.5 | 1.5/3.7 | 2/5     | 2.2/5.5 | 3/7.5    | 1.5/3.5           | 1.5/3.5 | 1.5/3.5 | 1.5/3.7 | 2/5     | 2.2/5.5 | 3/7.5    |
| 16'-6" | Unfactored Resistance (LL)  |           |         | 74      | 80      | 130     | 153     | 245      | 18                | 41      | 147     | 159     | 261     | 305     | 490      |
|        | Unfactored Resistance (TL)  |           |         | 106     | 115     | 190     | 223     | 361      | 12                | 33      | 212     | 229     | 380     | 446     | 721      |
|        | Total Factored Resistance   |           |         | 268     | 282     | 387     | 429     | 584      | 201               | 338     | 536     | 563     | 774     | 857     | 1,168    |
|        | Min. End/Int. Bearing (in.) |           |         | 1.5/3.5 | 1.5/3.5 | 1.7/4.3 | 1.9/4.7 | 2.6/6.4  | 1.5/3.5           | 1.5/3.5 | 1.5/3.5 | 1.5/3.5 | 1.7/4.3 | 1.9/4.7 | 2.6/6.4  |
| 18'-6" | Unfactored Resistance (LL)  |           |         | 53      | 57      | 93      | 109     | 176      |                   | 26      | 105     | 114     | 187     | 219     | 353      |
|        | Unfactored Resistance (TL)  |           |         | 74      | 81      | 134     | 158     | 258      |                   | 19      | 148     | 161     | 269     | 316     | 515      |
|        | Total Factored Resistance   |           |         | 212     | 223     | 307     | 339     | 463      |                   | 267     | 424     | 446     | 613     | 679     | 925      |
|        | Min. End/Int. Bearing (in.) |           |         | 1.5/3.5 | 1.5/3.5 | 1.5/3.8 | 1.7/4.2 | 2.3/5.7  |                   | 1.5/3.5 | 1.5/3.5 | 1.5/3.5 | 1.5/3.8 | 1.7/4.2 | 2.3/5.7  |
| 20'    | Unfactored Resistance (LL)  |           |         | 42      | 45      | 74      | 87      | 141      |                   | 19      | 84      | 90      | 149     | 174     | 282      |
|        | Unfactored Resistance (TL)  |           |         | 58      | 63      | 106     | 125     | 204      |                   | 12      | 116     | 126     | 212     | 249     | 408      |
|        | Total Factored Resistance   |           |         | 180     | 190     | 261     | 289     | 395      |                   | 227     | 361     | 380     | 522     | 579     | 789      |
|        | Min. End/Int. Bearing (in.) |           |         | 1.5/3.5 | 1.5/3.5 | 1.5/3.5 | 1.6/3.9 | 2.1/5.3  |                   | 1.5/3.5 | 1.5/3.5 | 1.5/3.5 | 1.5/3.5 | 1.6/3.9 | 2.1/5.3  |
| 24'    | Unfactored Resistance (LL)  |           |         |         |         | 43      | 51      | 83       |                   |         | 49      | 53      | 87      | 102     | 166      |
|        | Unfactored Resistance (TL)  |           |         |         |         | 59      | 70      | 117      |                   |         | 64      | 69      | 119     | 141     | 234      |
|        | Total Factored Resistance   |           |         |         |         | 179     | 199     | 271      |                   |         | 247     | 260     | 358     | 397     | 543      |
|        | Min. End/Int. Bearing (in.) |           |         |         |         | 1.5/3.5 | 1.5/3.5 | 1.8/4.4  |                   |         | 1.5/3.5 | 1.5/3.5 | 1.5/3.5 | 1.5/3.5 | 1.8/4.4  |
| 28'    | Unfactored Resistance (LL)  |           |         |         |         |         |         | 53       |                   |         | 31      | 33      | 55      | 65      | 105      |
|        | Unfactored Resistance (TL)  |           |         |         |         |         |         | 72       |                   |         | 37      | 40      | 71      | 85      | 144      |
|        | Total Factored Resistance   |           |         |         |         |         |         | 197      |                   |         | 178     | 188     | 260     | 288     | 394      |
|        | Min. End/Int. Bearing (in.) |           |         |         |         |         |         | 1.5/3.8  |                   |         | 1.5/3.5 | 1.5/3.5 | 1.5/3.5 | 1.5/3.5 | 1.5/3.8  |

\* Indicates Total Factored Resistance value controls.

# FLOOR AND/OR SNOW LOAD TABLES

## General Notes

- Table is based on:
  - Uniform loads (beam weight considered).
  - More restrictive of simple or continuous span.
  - Deflection criteria of L/360 live load (LL) and L/240 total load (TL).
- For a live load deflection limit of L/480, multiply **Unfactored Resistance (LL)** by 0.75. For a total load limit of Lr/180 multiply **Unfactored Resistance (TL)** by 1.33. The resulting loads must not exceed the **Total Factored Resistance** shown.
- For continuous spans, ratio of short span to long span should be 0.4 or greater to prevent uplift.

Also see **How to Use This Table** on page 6 and **General Assumptions** on page 3.

## 2.OE Microllam® LVL: Floor and/or Snow—Standard Term (PLF) *continued*

| Span   | Condition                   | 3½" Width (2-ply) |          |          | 5¼" Width (3-ply) |         |         |         |         |         |          |          |          |          |
|--------|-----------------------------|-------------------|----------|----------|-------------------|---------|---------|---------|---------|---------|----------|----------|----------|----------|
|        |                             | 16"               | 18"      | 20"      | 5½"               | 7¼"     | 9¼"     | 9½"     | 11¼"    | 11½"    | 14"      | 16"      | 18"      | 20"      |
| 6'     | Unfactored Resistance (LL)  | *                 | *        | *        | 916               | 1,979   | *       | *       | *       | *       | *        | *        | *        | *        |
|        | Unfactored Resistance (TL)  | *                 | *        | *        | 1,366             | *       | *       | *       | *       | *       | *        | *        | *        | *        |
|        | Total Factored Resistance   | 5,713             | 5,713    | 5,713    | 2,346             | 3,834   | 5,166   | 5,343   | 6,656   | 7,159   | 8,569    | 8,569    | 8,569    | 8,569    |
|        | Min. End/Int. Bearing (in.) | 4.5/11.3          | 4.5/11.3 | 4.5/11.3 | 1.5/3.5           | 2/5     | 2.7/6.8 | 2.8/7   | 3.5/8.7 | 3.8/9.4 | 4.5/11.3 | 4.5/11.3 | 4.5/11.3 | 4.5/11.3 |
| 8'     | Unfactored Resistance (LL)  | *                 | *        | *        | 401               | 887     | 1,754   | 1,887   | 2,977   | *       | *        | *        | *        | *        |
|        | Unfactored Resistance (TL)  | *                 | *        | *        | 462               | 1,028   | *       | *       | *       | *       | *        | *        | *        | *        |
|        | Total Factored Resistance   | 4,279             | 4,279    | 4,279    | 1,315             | 2,205   | 3,476   | 3,654   | 4,602   | 4,921   | 6,071    | 6,419    | 6,419    | 6,419    |
|        | Min. End/Int. Bearing (in.) | 4.5/11.3          | 4.5/11.3 | 4.5/11.3 | 1.5/3.5           | 1.5/3.9 | 2.4/6.1 | 2.6/6.4 | 3.2/8.1 | 3.4/8.6 | 4.3/10.6 | 4.5/11.3 | 4.5/11.3 | 4.5/11.3 |
| 9'-6"  | Unfactored Resistance (LL)  | *                 | *        | *        | 240               | 535     | 1,087   | 1,171   | 1,873   | 2,170   | *        | *        | *        | *        |
|        | Unfactored Resistance (TL)  | *                 | *        | *        | 231               | 524     | 1,616   | 1,742   | *       | *       | *        | *        | *        | *        |
|        | Total Factored Resistance   | 3,600             | 3,600    | 3,600    | 930               | 1,560   | 2,460   | 2,586   | 3,547   | 3,924   | 4,872    | 5,401    | 5,401    | 5,401    |
|        | Min. End/Int. Bearing (in.) | 4.5/11.3          | 4.5/11.3 | 4.5/11.3 | 1.5/3.5           | 1.5/3.5 | 2.1/5.1 | 2.2/5.4 | 3/7.4   | 3.3/8.2 | 4.1/10.1 | 4.5/11.3 | 4.5/11.3 | 4.5/11.3 |
| 10'    | Unfactored Resistance (LL)  | *                 | *        | *        | 196               | 439     | 940     | 1,014   | 1,626   | 1,887   | 2,942    | *        | *        | *        |
|        | Unfactored Resistance (TL)  | *                 | *        | *        | 187               | 427     | 1,396   | 1,506   | *       | *       | *        | *        | *        | *        |
|        | Total Factored Resistance   | 3,419             | 3,419    | 3,419    | 838               | 1,406   | 2,218   | 2,332   | 3,199   | 3,540   | 4,571    | 5,129    | 5,129    | 5,129    |
|        | Min. End/Int. Bearing (in.) | 4.5/11.3          | 4.5/11.3 | 4.5/11.3 | 1.5/3.5           | 1.5/3.5 | 2/4.9   | 2/5.1   | 2.8/7   | 3.1/7.8 | 4/10     | 4.5/11.3 | 4.5/11.3 | 4.5/11.3 |
| 12'    | Unfactored Resistance (LL)  | *                 | *        | *        | 95                | 215     | 558     | 603     | 977     | 1,137   | 1,798    | 2,583    | *        | *        |
|        | Unfactored Resistance (TL)  | *                 | *        | *        | 87                | 204     | 823     | 890     | 1,448   | 1,688   | *        | *        | *        | *        |
|        | Total Factored Resistance   | 2,846             | 2,846    | 2,846    | 579               | 972     | 1,535   | 1,614   | 2,215   | 2,451   | 3,336    | 4,269    | 4,269    | 4,269    |
|        | Min. End/Int. Bearing (in.) | 4.5/11.3          | 4.5/11.3 | 4.5/11.3 | 1.5/3.5           | 1.5/3.5 | 1.6/4.1 | 1.7/4.3 | 2.3/5.9 | 2.6/6.5 | 3.5/8.8  | 4.5/11.3 | 4.5/11.3 | 4.5/11.3 |
| 14'    | Unfactored Resistance (LL)  | 1,132             | 1,561    | *        | 52                | 117     | 357     | 386     | 629     | 735     | 1,171    | 1,698    | 2,342    | *        |
|        | Unfactored Resistance (TL)  | *                 | *        | *        | 43                | 106     | 522     | 565     | 927     | 1,084   | *        | *        | *        | *        |
|        | Total Factored Resistance   | 2,092             | 2,437    | 2,437    | 422               | 711     | 1,123   | 1,181   | 1,622   | 1,795   | 2,443    | 3,138    | 3,655    | 3,655    |
|        | Min. End/Int. Bearing (in.) | 3.9/9.7           | 4.5/11.3 | 4.5/11.3 | 1.5/3.5           | 1.5/3.5 | 1.5/3.5 | 1.5/3.7 | 2/5     | 2.2/5.5 | 3/7.5    | 3.9/9.7  | 4.5/11.3 | 4.5/11.3 |
| 16'-6" | Unfactored Resistance (LL)  | 716               | 996      | 1,331    | 27                | 61      | 221     | 239     | 391     | 458     | 735      | 1,074    | 1,493    | 1,996    |
|        | Unfactored Resistance (TL)  | *                 | *        | *        | 19                | 50      | 317     | 344     | 570     | 669     | 1,082    | *        | *        | *        |
|        | Total Factored Resistance   | 1,500             | 1,871    | 2,064    | 301               | 508     | 804     | 845     | 1,162   | 1,286   | 1,752    | 2,250    | 2,807    | 3,096    |
|        | Min. End/Int. Bearing (in.) | 3.3/8.2           | 4.1/10.2 | 4.5/11.3 | 1.5/3.5           | 1.5/3.5 | 1.5/3.5 | 1.5/3.5 | 1.7/4.3 | 1.9/4.7 | 2.6/6.4  | 3.3/8.2  | 4.1/10.2 | 4.5/11.3 |
| 18'-6" | Unfactored Resistance (LL)  | 518               | 723      | 971      | 17                | 39      | 158     | 171     | 280     | 328     | 529      | 777      | 1,084    | 1,456    |
|        | Unfactored Resistance (TL)  | 760               | *        | *        | 9                 | 28      | 223     | 242     | 403     | 474     | 773      | 1,140    | *        | *        |
|        | Total Factored Resistance   | 1,189             | 1,484    | 1,808    | 237               | 401     | 636     | 668     | 920     | 1,018   | 1,388    | 1,784    | 2,226    | 2,712    |
|        | Min. End/Int. Bearing (in.) | 2.9/7.3           | 3.6/9.1  | 4.4/11.1 | 1.5/3.5           | 1.5/3.5 | 1.5/3.5 | 1.5/3.5 | 1.5/3.8 | 1.7/4.2 | 2.3/5.7  | 2.9/7.3  | 3.6/9.1  | 4.4/11.1 |
| 20'    | Unfactored Resistance (LL)  | 414               | 580      | 781      | 13                | 29      | 125     | 136     | 223     | 262     | 423      | 621      | 870      | 1,171    |
|        | Unfactored Resistance (TL)  | 605               | 851      | *        | 4                 | 17      | 174     | 189     | 318     | 374     | 612      | 907      | 1,277    | *        |
|        | Total Factored Resistance   | 1,015             | 1,266    | 1,543    | 202               | 341     | 541     | 569     | 784     | 868     | 1,184    | 1,522    | 1,899    | 2,315    |
|        | Min. End/Int. Bearing (in.) | 2.7/6.8           | 3.4/8.4  | 4.1/10.3 | 1.5/3.5           | 1.5/3.5 | 1.5/3.5 | 1.5/3.5 | 1.5/3.5 | 1.6/3.9 | 2.1/5.3  | 2.7/6.8  | 3.4/8.4  | 4.1/10.3 |
| 24'    | Unfactored Resistance (LL)  | 244               | 344      | 466      |                   | 14      | 73      | 79      | 130     | 153     | 248      | 367      | 516      | 698      |
|        | Unfactored Resistance (TL)  | 350               | 498      | 678      |                   | 3       | 95      | 104     | 178     | 211     | 351      | 526      | 746      | 1,017    |
|        | Total Factored Resistance   | 698               | 872      | 1,064    |                   | 233     | 371     | 390     | 538     | 596     | 814      | 1,048    | 1,308    | 1,596    |
|        | Min. End/Int. Bearing (in.) | 2.3/5.6           | 2.8/7.0  | 3.4/8.6  |                   | 1.5/3.5 | 1.5/3.5 | 1.5/3.5 | 1.5/3.5 | 1.5/3.5 | 1.8/4.4  | 2.3/5.6  | 2.8/7.0  | 3.4/8.6  |
| 28'    | Unfactored Resistance (LL)  | 156               | 220      | 299      |                   |         | 46      | 50      | 83      | 97      | 158      | 234      | 330      | 448      |
|        | Unfactored Resistance (TL)  | 217               | 311      | 428      |                   |         | 55      | 60      | 107     | 127     | 215      | 326      | 467      | 641      |
|        | Total Factored Resistance   | 508               | 635      | 775      |                   |         | 268     | 282     | 389     | 432     | 591      | 761      | 952      | 1,162    |
|        | Min. End/Int. Bearing (in.) | 1.9/4.8           | 2.4/6.0  | 2.9/7.3  |                   |         | 1.5/3.5 | 1.5/3.5 | 1.5/3.5 | 1.5/3.5 | 1.5/3.8  | 1.9/4.8  | 2.4/6.0  | 2.9/7.3  |

\* Indicates Total Factored Resistance value controls.

# FLOOR AND/OR SNOW LOAD TABLES

## How to Use This Table

1. Calculate the factored and unfactored total load (TL) (neglect beam weight) and the unfactored live load (LL) on the beam or header in pounds per linear foot (plf).
2. Select appropriate **Span** (centre-to-centre of bearing).
3. Scan horizontally to find the proper width and a depth that has a capacity that meets or exceeds actual loads.
4. Review bearing length requirements to ensure adequacy.

Also see **General Notes** on page 9.

## 2.2E Parallam® PSL: Floor and/or Snow—Standard Term (PLF)

| Span   | Condition                   | 3½" Width |         |         |          |          |          |          | 5¼" Width |         |         |          |          |          |          |
|--------|-----------------------------|-----------|---------|---------|----------|----------|----------|----------|-----------|---------|---------|----------|----------|----------|----------|
|        |                             | 9¼"       | 9½"     | 11¼"    | 11½"     | 14"      | 16"      | 19"      | 9¼"       | 9½"     | 11¼"    | 11½"     | 14"      | 16"      | 19"      |
| 8'     | Unfactored Resistance (LL)  | 1,286     | 1,383   | *       | *        | *        | *        | *        | 1,929     | 2,075   | *       | *        | *        | *        | *        |
|        | Unfactored Resistance (TL)  | *         | *       | *       | *        | *        | *        | *        | *         | *       | *       | *        | *        | *        |          |
|        | Total Factored Resistance   | 2,467     | 2,546   | 3,124   | 3,341    | 3,554    | 3,554    | 3,554    | 3,701     | 3,820   | 4,687   | 5,012    | 5,331    | 5,331    | 5,331    |
|        | Min. End/Int. Bearing (in.) | 3.1/7.8   | 3.2/8.1 | 4/9.9   | 4.2/10.6 | 4.5/11.3 | 4.5/11.3 | 4.5/11.3 | 3.1/7.8   | 3.2/8.1 | 4/9.9   | 4.2/10.6 | 4.5/11.3 | 4.5/11.3 | 4.5/11.3 |
| 9'-6"  | Unfactored Resistance (LL)  | 796       | 858     | 1,373   | 1,591    | *        | *        | *        | 1,195     | 1,288   | 2,059   | 2,387    | *        | *        | *        |
|        | Unfactored Resistance (TL)  | 1,185     | 1,278   | *       | *        | *        | *        | *        | 1,777     | 1,917   | *       | *        | *        | *        | *        |
|        | Total Factored Resistance   | 1,818     | 1,912   | 2,536   | 2,705    | 2,989    | 2,989    | 2,989    | 2,727     | 2,868   | 3,804   | 4,058    | 4,484    | 4,484    | 4,484    |
|        | Min. End/Int. Bearing (in.) | 2.7/6.8   | 2.9/7.2 | 3.8/9.5 | 4.1/10.2 | 4.5/11.3 | 4.5/11.3 | 4.5/11.3 | 2.7/6.8   | 2.9/7.2 | 3.8/9.5 | 4.1/10.2 | 4.5/11.3 | 4.5/11.3 | 4.5/11.3 |
| 10'    | Unfactored Resistance (LL)  | 689       | 743     | 1,192   | 1,383    | *        | *        | *        | 1,034     | 1,115   | 1,788   | 2,075    | *        | *        | *        |
|        | Unfactored Resistance (TL)  | 1,024     | 1,104   | *       | *        | *        | *        | *        | 1,536     | 1,657   | *       | *        | *        | *        | *        |
|        | Total Factored Resistance   | 1,639     | 1,724   | 2,376   | 2,543    | 2,839    | 2,839    | 2,839    | 2,459     | 2,586   | 3,564   | 3,815    | 4,259    | 4,259    | 4,259    |
|        | Min. End/Int. Bearing (in.) | 2.6/6.5   | 2.7/6.8 | 3.8/9.4 | 4/10.1   | 4.5/11.3 | 4.5/11.3 | 4.5/11.3 | 2.6/6.5   | 2.7/6.8 | 3.8/9.4 | 4/10.1   | 4.5/11.3 | 4.5/11.3 | 4.5/11.3 |
| 12'    | Unfactored Resistance (LL)  | 409       | 442     | 716     | 834      | 1,318    | *        | *        | 614       | 663     | 1,074   | 1,251    | 1,977    | *        | *        |
|        | Unfactored Resistance (TL)  | 604       | 652     | 1,061   | 1,238    | *        | *        | *        | 906       | 979     | 1,592   | 1,857    | *        | *        | *        |
|        | Total Factored Resistance   | 1,134     | 1,193   | 1,645   | 1,823    | 2,362    | 2,362    | 2,362    | 1,702     | 1,790   | 2,467   | 2,734    | 3,544    | 3,544    | 3,544    |
|        | Min. End/Int. Bearing (in.) | 2.2/5.4   | 2.3/5.7 | 3.1/7.8 | 3.5/8.7  | 4.5/11.3 | 4.5/11.3 | 4.5/11.3 | 2.2/5.4   | 2.3/5.7 | 3.1/7.8 | 3.5/8.7  | 4.5/11.3 | 4.5/11.3 | 4.5/11.3 |
| 14'    | Unfactored Resistance (LL)  | 261       | 283     | 461     | 538      | 858      | 1,245    | *        | 392       | 424     | 692     | 808      | 1,288    | 1,868    | *        |
|        | Unfactored Resistance (TL)  | 382       | 414     | 679     | 795      | *        | *        | *        | 574       | 621     | 1,019   | 1,192    | *        | *        | *        |
|        | Total Factored Resistance   | 830       | 873     | 1,204   | 1,335    | 1,825    | 2,022    | 2,022    | 1,245     | 1,310   | 1,807   | 2,002    | 2,737    | 3,033    | 3,033    |
|        | Min. End/Int. Bearing (in.) | 1.9/4.6   | 2/4.9   | 2.7/6.7 | 3/7.4    | 4.1/10.2 | 4.5/11.3 | 4.5/11.3 | 1.9/4.6   | 2/4.9   | 2.7/6.7 | 3/7.4    | 4.1/10.2 | 4.5/11.3 | 4.5/11.3 |
| 16'-6" | Unfactored Resistance (LL)  | 162       | 175     | 287     | 335      | 539      | 787      | *        | 243       | 262     | 430     | 503      | 808      | 1,181    | *        |
|        | Unfactored Resistance (TL)  | 232       | 252     | 418     | 490      | 793      | *        | *        | 349       | 378     | 627     | 736      | 1,190    | *        | *        |
|        | Total Factored Resistance   | 594       | 625     | 862     | 956      | 1,308    | 1,686    | 1,712    | 891       | 937     | 1,294   | 1,434    | 1,962    | 2,530    | 2,569    |
|        | Min. End/Int. Bearing (in.) | 1.6/3.9   | 1.7/4.1 | 2.3/5.7 | 2.5/6.3  | 3.4/8.6  | 4.4/11.1 | 4.5/11.3 | 1.6/3.9   | 1.7/4.1 | 2.3/5.7 | 2.5/6.3  | 3.4/8.6  | 4.4/11.1 | 4.5/11.3 |
| 18'-6" | Unfactored Resistance (LL)  | 115       | 125     | 205     | 240      | 388      | 569      | 925      | 173       | 187     | 308     | 361      | 582      | 854      | 1,388    |
|        | Unfactored Resistance (TL)  | 163       | 177     | 296     | 348      | 567      | 836      | *        | 245       | 266     | 444     | 522      | 850      | 1,255    | *        |
|        | Total Factored Resistance   | 470       | 494     | 683     | 757      | 1,036    | 1,337    | 1,525    | 705       | 742     | 1,025   | 1,136    | 1,555    | 2,005    | 2,287    |
|        | Min. End/Int. Bearing (in.) | 1.5/3.5   | 1.5/3.7 | 2/5.1   | 2.3/5.6  | 3.1/7.7  | 4/9.9    | 4.5/11.3 | 1.5/3.5   | 1.5/3.7 | 2/5.1   | 2.3/5.6  | 3.1/7.7  | 4/9.9    | 4.5/11.3 |
| 20'    | Unfactored Resistance (LL)  | 91        | 99      | 163     | 191      | 309      | 455      | 743      | 137       | 149     | 245     | 287      | 464      | 683      | 1,115    |
|        | Unfactored Resistance (TL)  | 127       | 138     | 233     | 274      | 449      | 665      | *        | 191       | 208     | 349     | 412      | 674      | 998      | *        |
|        | Total Factored Resistance   | 400       | 421     | 582     | 645      | 884      | 1,141    | 1,409    | 600       | 632     | 873     | 968      | 1,326    | 1,711    | 2,113    |
|        | Min. End/Int. Bearing (in.) | 1.5/3.5   | 1.5/3.5 | 1.9/4.7 | 2.1/5.2  | 2.8/7.1  | 3.7/9.1  | 4.5/11.3 | 1.5/3.5   | 1.5/3.5 | 1.9/4.7 | 2.1/5.2  | 2.8/7.1  | 3.7/9.1  | 4.5/11.3 |
| 24'    | Unfactored Resistance (LL)  | 53        | 57      | 95      | 112      | 182      | 268      | 442      | 80        | 86      | 143     | 168      | 273      | 403      | 663      |
|        | Unfactored Resistance (TL)  | 70        | 76      | 131     | 155      | 257      | 385      | 642      | 105       | 114     | 196     | 233      | 386      | 578      | 963      |
|        | Total Factored Resistance   | 274       | 288     | 399     | 443      | 608      | 785      | 1,091    | 411       | 433     | 599     | 665      | 912      | 1,178    | 1,636    |
|        | Min. End/Int. Bearing (in.) | 1.5/3.5   | 1.5/3.5 | 1.6/3.9 | 1.7/4.3  | 2.4/5.9  | 3/7.6    | 4.2/10.5 | 1.5/3.5   | 1.5/3.5 | 1.6/3.9 | 1.7/4.3  | 2.4/5.9  | 3/7.6    | 4.2/10.5 |
| 28'    | Unfactored Resistance (LL)  | 33        | 36      | 60      | 71       | 115      | 171      | 283      | 50        | 55      | 90      | 106      | 173      | 257      | 424      |
|        | Unfactored Resistance (TL)  | 40        | 44      | 78      | 93       | 158      | 239      | 403      | 61        | 66      | 117     | 140      | 237      | 359      | 605      |
|        | Total Factored Resistance   | 198       | 208     | 289     | 321      | 441      | 571      | 794      | 297       | 312     | 434     | 482      | 662      | 857      | 1,192    |
|        | Min. End/Int. Bearing (in.) | 1.5/3.5   | 1.5/3.5 | 1.5/3.5 | 1.5/3.7  | 2/5.1    | 2.6/6.5  | 3.6/9    | 1.5/3.5   | 1.5/3.5 | 1.5/3.5 | 1.5/3.7  | 2/5.1    | 2.6/6.5  | 3.6/9    |
| 32'    | Unfactored Resistance (LL)  |           |         | 40      | 47       | 78       | 115      | 191      | 34        | 36      | 61      | 71       | 117      | 173      | 287      |
|        | Unfactored Resistance (TL)  |           |         | 48      | 58       | 101      | 156      | 266      | 36        | 39      | 73      | 88       | 152      | 234      | 400      |
|        | Total Factored Resistance   |           |         | 218     | 242      | 333      | 432      | 602      | 223       | 235     | 327     | 363      | 500      | 648      | 903      |
|        | Min. End/Int. Bearing (in.) |           |         | 1.5/3.5 | 1.5/3.5  | 1.8/4.4  | 2.3/5.7  | 3.2/7.9  | 1.5/3.5   | 1.5/3.5 | 1.5/3.5 | 1.5/3.5  | 1.8/4.4  | 2.3/5.7  | 3.2/7.9  |

\* Indicates Total Factored Resistance value controls.



# FLOOR AND/OR SNOW LOAD TABLES

## General Notes

- Table is based on:
  - Uniform loads (beam weight considered).
  - More restrictive of simple or continuous span.
  - Deflection criteria of L/360 live load (LL) and L/240 total load (TL).
- For a live load deflection limit of L/480, multiply **Unfactored Resistance (LL)** by 0.75. For a total load limit of L/180 multiply **Unfactored Resistance (TL)** by 1.33. The resulting loads must not exceed the **Total Factored Resistance** shown.
- For continuous spans, ratio of short span to long span should be 0.4 or greater to prevent uplift.

Also see **How to Use This Table** on page 8 and **General Assumptions** on page 3.

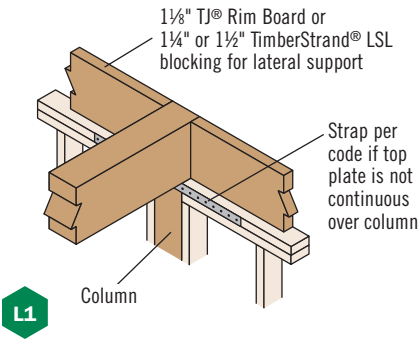
## 2.2E Parallam® PSL: Floor and/or Snow— Standard Term (PLF) *continued*

| Span   | Condition                   | 7" Width |         |         |          |          |          |          |
|--------|-----------------------------|----------|---------|---------|----------|----------|----------|----------|
|        |                             | 9¼"      | 9½"     | 11¼"    | 11⅝"     | 14"      | 16"      | 19"      |
| 8'     | Unfactored Resistance (LL)  | 2,572    | 2,767   | *       | *        | *        | *        | *        |
|        | Unfactored Resistance (TL)  | *        | *       | *       | *        | *        | *        | *        |
|        | Total Factored Resistance   | 4,935    | 5,093   | 6,249   | 6,683    | 7,108    | 7,108    | 7,108    |
|        | Min. End/Int. Bearing (in.) | 3.1/7.8  | 3.2/8.1 | 4/9.9   | 4.2/10.6 | 4.5/11.3 | 4.5/11.3 | 4.5/11.3 |
| 9'-6"  | Unfactored Resistance (LL)  | 1,593    | 1,717   | 2,746   | 3,182    | *        | *        | *        |
|        | Unfactored Resistance (TL)  | 2,370    | 2,556   | *       | *        | *        | *        | *        |
|        | Total Factored Resistance   | 3,636    | 3,824   | 5,072   | 5,410    | 5,979    | 5,979    | 5,979    |
|        | Min. End/Int. Bearing (in.) | 2.7/6.8  | 2.9/7.2 | 3.8/9.5 | 4.1/10.2 | 4.5/11.3 | 4.5/11.3 | 4.5/11.3 |
| 10'    | Unfactored Resistance (LL)  | 1,378    | 1,486   | 2,385   | 2,767    | *        | *        | *        |
|        | Unfactored Resistance (TL)  | 2,048    | 2,209   | *       | *        | *        | *        | *        |
|        | Total Factored Resistance   | 3,279    | 3,449   | 4,752   | 5,087    | 5,678    | 5,678    | 5,678    |
|        | Min. End/Int. Bearing (in.) | 2.6/6.5  | 2.7/6.8 | 3.8/9.4 | 4/10.1   | 4.5/11.3 | 4.5/11.3 | 4.5/11.3 |
| 12'    | Unfactored Resistance (LL)  | 818      | 884     | 1,432   | 1,668    | 2,636    | *        | *        |
|        | Unfactored Resistance (TL)  | 1,208    | 1,305   | 2,123   | 2,476    | *        | *        | *        |
|        | Total Factored Resistance   | 2,269    | 2,387   | 3,290   | 3,646    | 4,725    | 4,725    | 4,725    |
|        | Min. End/Int. Bearing (in.) | 2.2/5.4  | 2.3/5.7 | 3.1/7.8 | 3.5/8.7  | 4.5/11.3 | 4.5/11.3 | 4.5/11.3 |
| 14'    | Unfactored Resistance (LL)  | 523      | 566     | 922     | 1,077    | 1,717    | 2,490    | *        |
|        | Unfactored Resistance (TL)  | 765      | 828     | 1,359   | 1,590    | *        | *        | *        |
|        | Total Factored Resistance   | 1,660    | 1,747   | 2,409   | 2,670    | 3,650    | 4,044    | 4,044    |
|        | Min. End/Int. Bearing (in.) | 1.9/4.6  | 2/4.9   | 2.7/6.7 | 3/7.4    | 4.1/10.2 | 4.5/11.3 | 4.5/11.3 |
| 16'-6" | Unfactored Resistance (LL)  | 324      | 350     | 574     | 671      | 1,078    | 1,575    | *        |
|        | Unfactored Resistance (TL)  | 465      | 504     | 836     | 981      | 1,587    | *        | *        |
|        | Total Factored Resistance   | 1,188    | 1,250   | 1,725   | 1,913    | 2,617    | 3,373    | 3,425    |
|        | Min. End/Int. Bearing (in.) | 1.6/3.9  | 1.7/4.1 | 2.3/5.7 | 2.5/6.3  | 3.4/8.6  | 4.4/11.1 | 4.5/11.3 |
| 18'-6" | Unfactored Resistance (LL)  | 231      | 250     | 411     | 481      | 776      | 1,139    | 1,851    |
|        | Unfactored Resistance (TL)  | 326      | 354     | 592     | 696      | 1,134    | 1,673    | *        |
|        | Total Factored Resistance   | 940      | 989     | 1,366   | 1,515    | 2,073    | 2,674    | 3,050    |
|        | Min. End/Int. Bearing (in.) | 1.5/3.5  | 1.5/3.7 | 2/5.1   | 2.3/5.6  | 3.1/7.7  | 4/9.9    | 4.5/11.3 |
| 20'    | Unfactored Resistance (LL)  | 183      | 198     | 327     | 383      | 619      | 911      | 1,486    |
|        | Unfactored Resistance (TL)  | 255      | 277     | 466     | 549      | 898      | 1,331    | *        |
|        | Total Factored Resistance   | 800      | 842     | 1,164   | 1,291    | 1,769    | 2,282    | 2,818    |
|        | Min. End/Int. Bearing (in.) | 1.5/3.5  | 1.5/3.5 | 1.9/4.7 | 2.1/5.2  | 2.8/7.1  | 3.7/9.1  | 4.5/11.3 |
| 24'    | Unfactored Resistance (LL)  | 107      | 115     | 191     | 224      | 364      | 537      | 884      |
|        | Unfactored Resistance (TL)  | 140      | 153     | 262     | 310      | 515      | 771      | 1,284    |
|        | Total Factored Resistance   | 548      | 577     | 799     | 887      | 1,216    | 1,571    | 2,182    |
|        | Min. End/Int. Bearing (in.) | 1.5/3.5  | 1.5/3.5 | 1.6/3.9 | 1.7/4.3  | 2.4/5.9  | 3/7.6    | 4.2/10.5 |
| 28'    | Unfactored Resistance (LL)  | 67       | 73      | 121     | 142      | 231      | 342      | 566      |
|        | Unfactored Resistance (TL)  | 81       | 89      | 157     | 187      | 316      | 479      | 807      |
|        | Total Factored Resistance   | 396      | 417     | 579     | 643      | 883      | 1,142    | 1,589    |
|        | Min. End/Int. Bearing (in.) | 1.5/3.5  | 1.5/3.5 | 1.5/3.5 | 1.5/3.7  | 2/5.1    | 2.6/6.5  | 3.6/9    |
| 32'    | Unfactored Resistance (LL)  | 45       | 49      | 81      | 95       | 156      | 231      | 383      |
|        | Unfactored Resistance (TL)  | 48       | 53      | 97      | 117      | 203      | 312      | 533      |
|        | Total Factored Resistance   | 297      | 313     | 436     | 484      | 667      | 864      | 1,204    |
|        | Min. End/Int. Bearing (in.) | 1.5/3.5  | 1.5/3.5 | 1.5/3.5 | 1.5/3.5  | 1.8/4.4  | 2.3/5.7  | 3.2/7.9  |

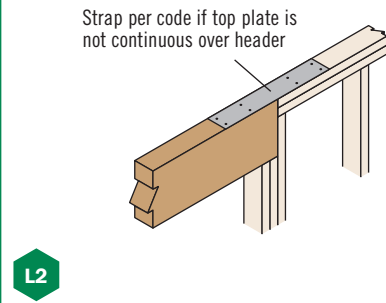
\* Indicates **Total Factored Resistance** value controls.

# BEAM DETAILS

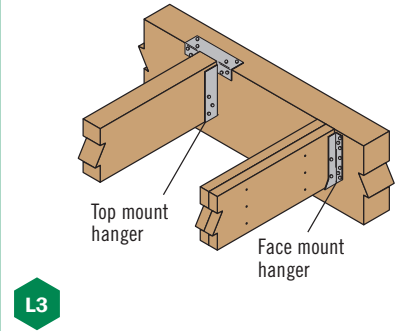
## Bearing at Wall



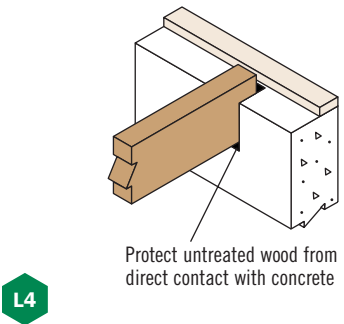
## Bearing for Door or Window Header



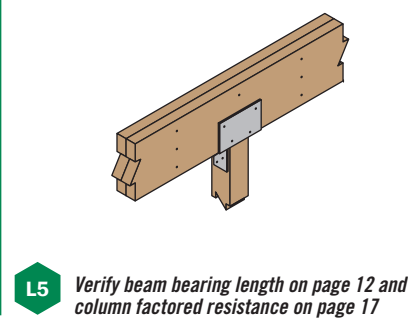
## Beam to Beam Connection



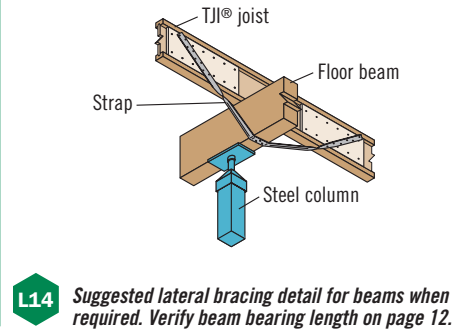
## Bearing at Concrete Wall



## Bearing at Column



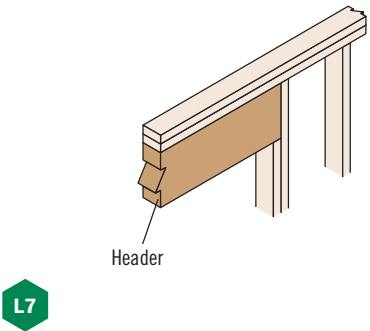
## Beam to Column Lateral Brace



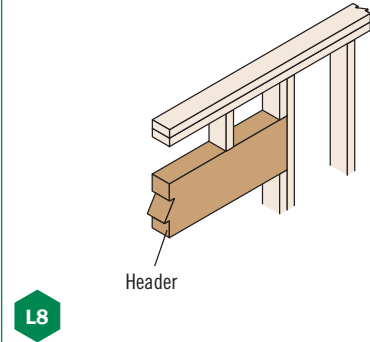
# WINDOW AND DOOR HEADER DETAILS

## 2x4 Wall Framing

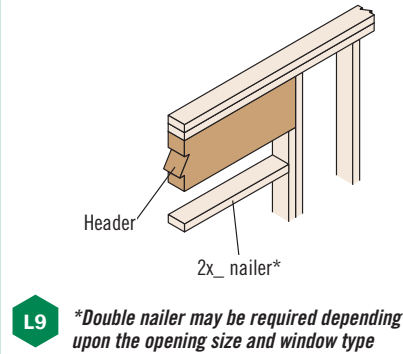
### Full Depth Header



### Low Header



### High Header

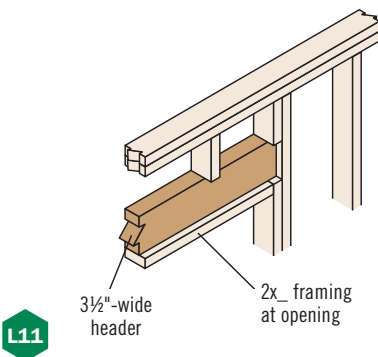


\*Double nailer may be required depending upon the opening size and window type

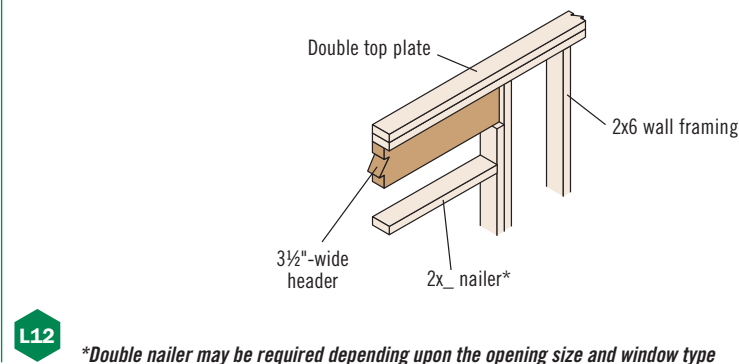
## 2x6 Wall Framing

Headers not matching wall thickness may be installed flush to the inside or outside of the wall depending upon sheathing and trim attachment requirements

### Low Header



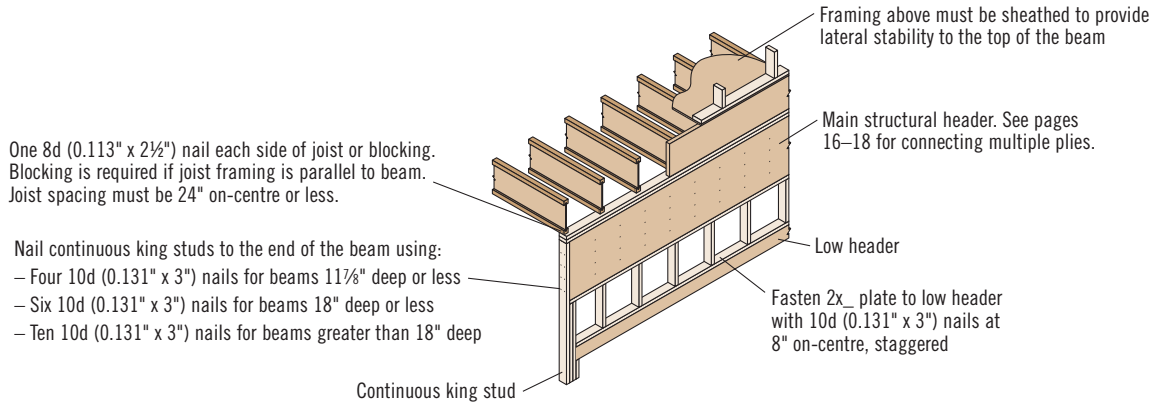
### High Header



\*Double nailer may be required depending upon the opening size and window type

# WINDOW AND DOOR HEADER DETAILS

## Dropped Header with Full Lateral Bracing

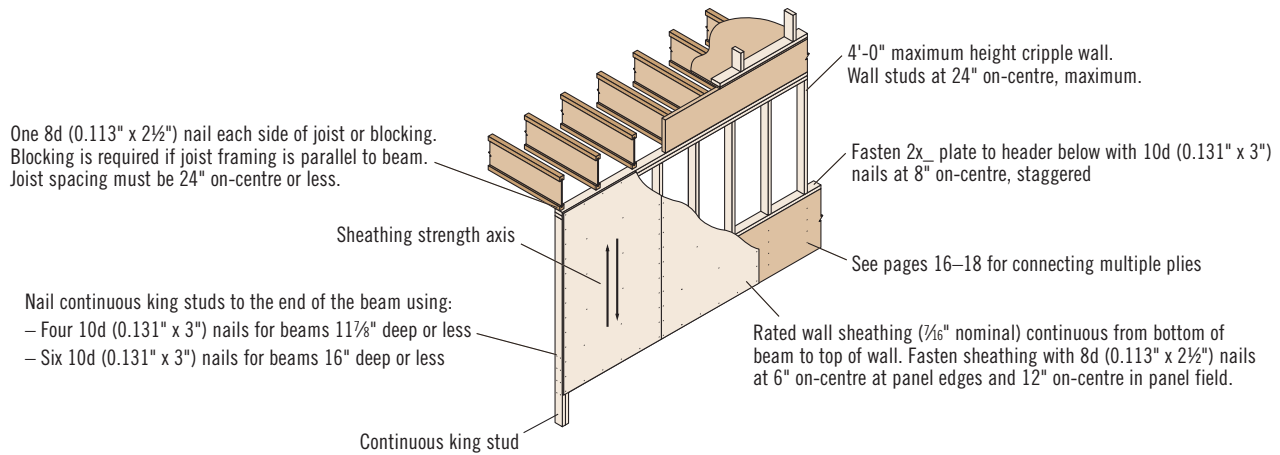


One 8d (0.113" x 2½") nail each side of joist or blocking. Blocking is required if joist framing is parallel to beam. Joist spacing must be 24" on-centre or less.

Nail continuous king studs to the end of the beam using:  
 – Four 10d (0.131" x 3") nails for beams 11⅞" deep or less  
 – Six 10d (0.131" x 3") nails for beams 18" deep or less  
 – Ten 10d (0.131" x 3") nails for beams greater than 18" deep

L15

## Dropped Header with Acceptable Lateral Bracing



One 8d (0.113" x 2½") nail each side of joist or blocking. Blocking is required if joist framing is parallel to beam. Joist spacing must be 24" on-centre or less.

Nail continuous king studs to the end of the beam using:  
 – Four 10d (0.131" x 3") nails for beams 11⅞" deep or less  
 – Six 10d (0.131" x 3") nails for beams 16" deep or less

L16

When framed as shown above, the following dropped headers are considered fully braced under uniform-load, simple-span conditions:

### Single-ply:

- 1¾" wide headers, 11⅞" deep or less
- 3½" wide headers, 16" deep or less, with a maximum span of 18'-6"

### Multiple-ply:

- Headers up to four 1¾" plies, 11⅞" deep or less
- Headers up to four 1¾" x 14" plies, with a maximum span of 8'-6"

## NAILING ON NARROW FACE

### Nails Installed on the Narrow Face

| Nail Size                               | Closest On-Centre Spacing Per Row |                   |               |
|---|-----------------------------------|-------------------|---------------|
|   | TimberStrand® LSL                 | Microllam® LVL    | Parallam® PSL |
| 8d (0.131" x 2½") or 10d (0.128" x 3")  | 3"                                | 4"                | 4"            |
| 10d (0.148" x 3") or 12d (0.148" x 3¼") | 3"                                | 5"                | 4"            |
| 16d (0.162" x 3½")                      | 6" <sup>(1)</sup>                 | 8" <sup>(2)</sup> | 6"            |

(1) Can be reduced to 3½" on-centre if nail penetration into the narrow edge is no more than 1¼" (to minimize splitting).

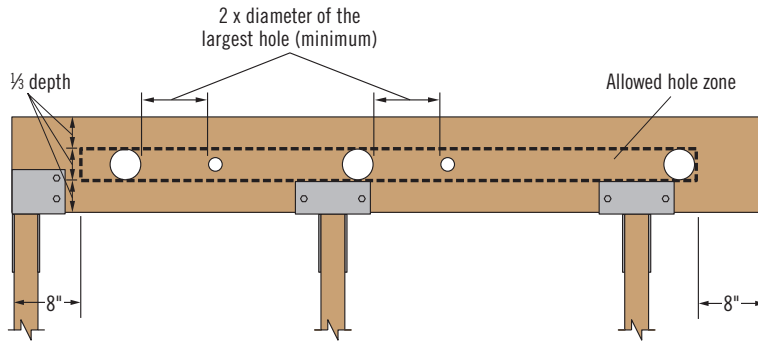
(2) Can be reduced to 5" on-centre if nail penetration into the narrow edge is no more than 1¼" (to minimize splitting).

- To minimize splitting, member edge distance and spacing between rows shall be 2.5 x nail diameter or ¾", whichever is greater. Where multiple rows are used, fasteners in adjacent rows must be staggered and the rows must be equally spaced from the centreline of the narrow face axis.

**Fastener spacing not applicable for shear wall applications. See CCMC 12627-R report for grade specific TimberStrand® LSL nailing requirements for shear walls.**

# ALLOWABLE HOLES

## 1.55E TimberStrand® LSL Headers and Beams



## General Notes

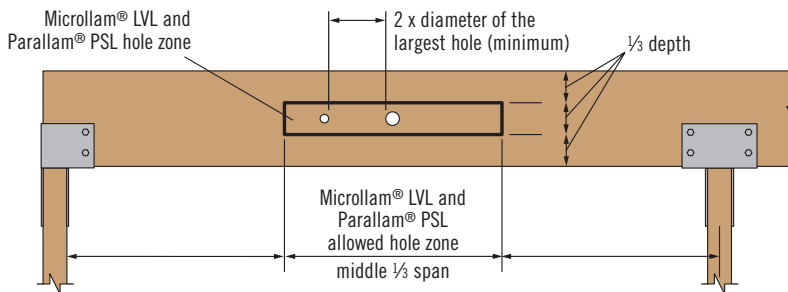
- Allowed hole zone suitable for headers and beams with **uniform and/or concentrated loads** anywhere along member.
- Round holes only.
- No holes in headers or beams in plank orientation.

## 1.55E TimberStrand® LSL

| Header or Beam Depth | Maximum Round Hole Size |
|----------------------|-------------------------|
| 9½"                  | 3"                      |
| 11⅞"                 | 3⅝"                     |
| 14"–16"              | 4⅝"                     |

- See illustration for allowed hole zone.

## Microllam® LVL and Parallam® PSL Headers and Beams



## General Notes

- Allowed hole zone suitable for headers and beams with **uniform loads only**.
- Round holes only.
- No holes in cantilevers.
- No holes in headers or beams in plank orientation.

## Microllam® LVL and Parallam® PSL

| Header or Beam Depth | Maximum Round Hole Size |
|----------------------|-------------------------|
| 5½"                  | 1¾"                     |
| 7¼"–20"              | 2"                      |

- See illustration for allowed hole zone.

Larger holes in Trus Joist® structural composite lumber may be possible; refer to Forte®WEB or Javelin® software.



**DO NOT** cut, notch, or drill holes in headers or beams except as indicated in the illustrations and tables

# BEARING LENGTH REQUIREMENTS

| Factored Reaction (lbs) | 1.55E TimberStrand® LSL |      |      | 2.0E Microllam® LVL |     |      | 2.2E Parallam® PSL |      |      |
|-------------------------|-------------------------|------|------|---------------------|-----|------|--------------------|------|------|
|                         | Beam Orientation        |      |      | Beam Orientation    |     |      | Beam Orientation   |      |      |
|                         | 1¾"                     | 3½"  | 5¼"  | 1¾"                 | 3½" | 5¼"  | 3½"                | 5¼"  | 7"   |
| 6,000                   | 2 ¾"                    | 1 ½" | 1 ½" | 3¼"                 | 1¾" | 1 ½" | 2"                 | 1 ½" | 1 ½" |
| 8,000                   | 3 ½"                    | 1 ¾" | 1 ½" | 4¼"                 | 2¼" | 1 ½" | 2¾"                | 1¾"  | 1 ½" |
| 10,000                  | 4 ½"                    | 2 ¼" | 1 ½" | 5¼"                 | 2¾" | 1¾"  | 3¼"                | 2¼"  | 1¾"  |
| 12,000                  | 5 ¼"                    | 2 ¾" | 1 ¾" | 6½"                 | 3¼" | 2¼"  | 4"                 | 2¾"  | 2"   |
| 14,000                  | 6 ¼"                    | 3 ¼" | 2 ¼" | 7½"                 | 3¾" | 2½"  | 4½"                | 3"   | 2¼"  |
| 16,000                  | 7"                      | 3 ½" | 2 ½" |                     | 4¼" | 3"   | 5¼"                | 3½"  | 2¾"  |
| 18,000                  | 8"                      | 4"   | 2 ¾" |                     | 4¾" | 3¼"  | 5¾"                | 4"   | 3"   |
| 20,000                  |                         | 4 ½" | 3"   |                     | 5¼" | 3½"  | 6½"                | 4¼"  | 3¾"  |
| 22,000                  |                         | 5"   | 3 ½" |                     | 6"  | 4"   | 7"                 | 4¾"  | 3½"  |
| 24,000                  |                         | 5 ¼" | 3 ½" |                     | 6½" | 4¼"  | 7¾"                | 5¼"  | 4"   |
| 26,000                  |                         | 5 ¾" | 4"   |                     | 7"  | 4¾"  |                    | 5½"  | 4¼"  |
| 28,000                  |                         | 6 ¼" | 4 ¼" |                     | 7½" | 5"   |                    | 6"   | 4½"  |
| 30,000                  |                         | 6 ¾" | 4 ½" |                     | 8"  | 5¼"  |                    | 6½"  | 4¾"  |
| 32,000                  |                         | 7"   | 4 ¾" |                     |     | 5¾"  |                    | 6¾"  | 5¼"  |
| 34,000                  |                         | 7 ½" | 5"   |                     |     | 6"   |                    | 7¼"  | 5½"  |

## General Notes

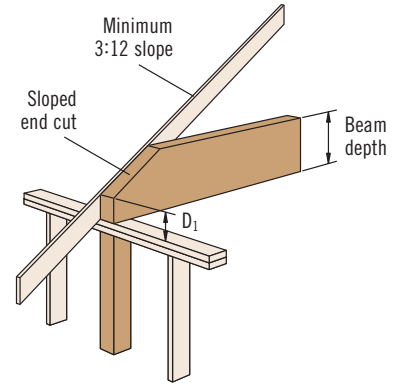
- Minimum bearing length:** 1½" at ends, 3½" at intermediate supports.
- Bearing across full beam width required.
- Interpolation between reaction loads is permitted for determining bearing lengths.
- Bearing lengths based on the following factored bearing resistances:
  - 1.55E TimberStrand® LSL: 1,165 psi.
  - 2.0E Microllam® LVL: 1,090 psi.
  - 2.2E Parallam® PSL: 905 psi.

# TAPERED END CUTS

## Factored Reactions for 3½" (1) TimberStrand® LSL Headers and Beams (lbs)

| Bearing                       | Beam Depth | Outside Heel Height D <sub>1</sub> |       |        |        |        |        |        |        |
|-------------------------------|------------|------------------------------------|-------|--------|--------|--------|--------|--------|--------|
|                               |            | 4½"                                | 5"    | 5½"    | 6"     | 6½"    | 7"     | 7½"    | 8"     |
| 3½" Wood Plate <sup>(2)</sup> | 9½"–11½"   | 7,535                              | 7,535 | 7,535  | 7,535  | 7,535  | 7,535  | 7,535  | 7,535  |
|                               | 14"        |                                    | 7,535 | 7,535  | 7,535  | 7,535  | 7,535  | 7,535  | 7,535  |
|                               | 16"        |                                    |       |        | 7,535  | 7,535  | 7,535  | 7,535  | 7,535  |
| 5¼" Wood Plate <sup>(2)</sup> | 9½"        | 8,775                              | 9,530 | 10,285 | 11,035 | 11,300 | 11,300 | 11,300 | 11,300 |
|                               | 11½"–14"   | 8,775                              | 9,530 | 10,285 | 11,035 | 11,300 | 11,300 | 11,300 | 11,300 |
|                               | 16"        |                                    |       | 10,285 | 11,035 | 11,300 | 11,300 | 11,300 | 11,300 |
| 3½" Column <sup>(3)</sup>     | 9½"        | 8,115                              | 8,870 | 9,620  | 10,375 | 11,130 | 11,470 | 11,470 | 11,470 |
|                               | 11½"       | 8,115                              | 8,870 | 9,620  | 10,375 | 11,130 | 11,885 | 12,640 | 13,395 |
|                               | 14"        |                                    | 8,870 | 9,620  | 10,375 | 11,130 | 11,885 | 12,640 | 13,395 |
|                               | 16"        |                                    |       |        | 10,375 | 11,130 | 11,885 | 12,640 | 13,395 |

- (1) For 1¾" and 5¼" beams, multiply by 0.5 and 1.5, respectively.  
 (2) Bearing lengths are based on factored bearing resistance of 615 psi.  
 (3) Bearing lengths are based on factored bearing resistance of 1,165 psi.



*Tapered end cut detailed above is not allowed with TJI® joists*

## Factored Reactions for 3½" (1) Microllam® LVL and Parallam® PSL Headers and Beams (lbs)

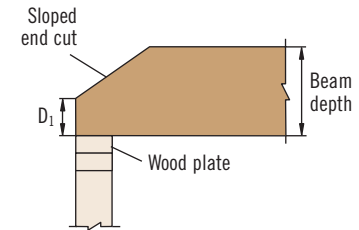
| Bearing                       | Beam Depth | Outside Heel Height D <sub>1</sub> |       |       |        |        |        |        |        |        |        |
|-------------------------------|------------|------------------------------------|-------|-------|--------|--------|--------|--------|--------|--------|--------|
|                               |            | 4½"                                | 5"    | 5½"   | 6"     | 6½"    | 7"     | 7½"    | 8"     | 10"    |        |
| 3½" Wood Plate <sup>(2)</sup> | 7¼"        | 7,480                              | 7,535 | 7,535 | 7,535  |        |        |        |        |        |        |
|                               | 9¼"        | 7,480                              | 7,535 | 7,535 | 7,535  | 7,535  | 7,535  | 7,535  | 7,535  |        |        |
|                               | 9½"        | 7,480                              | 7,535 | 7,535 | 7,535  | 7,535  | 7,535  | 7,535  | 7,535  |        |        |
|                               | 11¼"       | 7,480                              | 7,535 | 7,535 | 7,535  | 7,535  | 7,535  | 7,535  | 7,535  | 7,535  |        |
|                               | 11½"       | 7,480                              | 7,535 | 7,535 | 7,535  | 7,535  | 7,535  | 7,535  | 7,535  | 7,535  |        |
|                               | 14"        |                                    | 7,535 | 7,535 | 7,535  | 7,535  | 7,535  | 7,535  | 7,535  | 7,535  |        |
|                               | 16"        |                                    |       |       |        | 7,535  | 7,535  | 7,535  | 7,535  | 7,535  | 7,535  |
|                               | 18"        |                                    |       |       |        |        | 7,535  | 7,535  | 7,535  | 7,535  | 7,535  |
|                               | 19"        |                                    |       |       |        |        |        | 7,535  | 7,535  | 7,535  | 7,535  |
|                               | 20"        |                                    |       |       |        |        |        |        | 7,535  | 7,535  | 7,535  |
| 5¼" Wood Plate <sup>(2)</sup> | 7¼"        | 8,070                              | 8,070 | 8,070 |        |        |        |        |        |        |        |
|                               | 9¼"        | 8,085                              | 8,780 | 9,480 | 10,175 | 10,295 | 10,295 | 10,295 |        |        |        |
|                               | 9½"        | 8,085                              | 8,780 | 9,480 | 10,175 | 10,575 | 10,575 | 10,575 | 10,575 |        |        |
|                               | 11¼"       | 8,085                              | 8,780 | 9,480 | 10,175 | 10,870 | 11,300 | 11,300 | 11,300 |        |        |
|                               | 11½"       | 8,085                              | 8,780 | 9,480 | 10,175 | 10,870 | 11,300 | 11,300 | 11,300 | 11,300 |        |
|                               | 14"        | 8,085                              | 8,780 | 9,480 | 10,175 | 10,870 | 11,300 | 11,300 | 11,300 | 11,300 |        |
|                               | 16"        |                                    |       | 9,480 | 10,175 | 10,870 | 11,300 | 11,300 | 11,300 | 11,300 | 11,300 |
|                               | 18"        |                                    |       |       | 10,175 | 10,870 | 11,300 | 11,300 | 11,300 | 11,300 | 11,300 |
|                               | 19"        |                                    |       |       |        | 10,870 | 11,300 | 11,300 | 11,300 | 11,300 | 11,300 |
|                               | 20"        |                                    |       |       |        |        | 11,300 | 11,300 | 11,300 | 11,300 | 11,300 |
| 3½" Column <sup>(3)</sup>     | 7¼"        | 7,480                              | 8,070 | 8,070 | 8,070  |        |        |        |        |        |        |
|                               | 9¼"        | 7,480                              | 8,175 | 8,870 | 9,565  | 10,260 | 10,295 | 10,295 | 10,295 |        |        |
|                               | 9½"        | 7,480                              | 8,175 | 8,870 | 9,565  | 10,260 | 10,575 | 10,575 | 10,575 |        |        |
|                               | 11¼"       | 7,480                              | 8,175 | 8,870 | 9,565  | 10,260 | 10,955 | 11,125 | 11,125 | 11,125 |        |
|                               | 11½"       | 7,480                              | 8,175 | 8,870 | 9,565  | 10,260 | 10,955 | 11,125 | 11,125 | 11,125 |        |
|                               | 14"        |                                    | 8,175 | 8,870 | 9,565  | 10,260 | 10,955 | 11,125 | 11,125 | 11,125 |        |
|                               | 16"        |                                    |       |       | 9,565  | 10,260 | 10,955 | 11,125 | 11,125 | 11,125 | 11,125 |
|                               | 18"        |                                    |       |       |        | 10,260 | 10,955 | 11,125 | 11,125 | 11,125 | 11,125 |
|                               | 19"        |                                    |       |       |        |        | 10,955 | 11,125 | 11,125 | 11,125 | 11,125 |
|                               | 20"        |                                    |       |       |        |        |        | 11,125 | 11,125 | 11,125 | 11,125 |

- (1) For 1¾", 5¼", and 7" beams, multiply by 0.5, 1.5, and 2.0, respectively.  
 (2) Bearing lengths based on a factored bearing resistance of 620 psi.  
 (3) Bearing lengths based on factored bearing resistance of 905 psi for Microllam® LVL and Parallam® PSL.

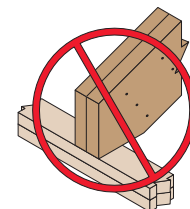
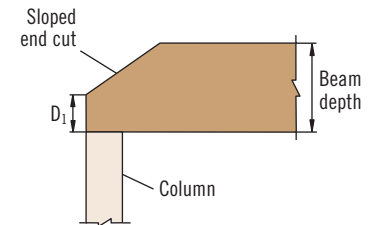
### General Notes

- No increase for duration of load is permitted above standard term.
- No holes or concentrated load within tapered cut.
- Table considers only downward loading. Contact your Weyerhaeuser representative for assistance with uplift loading or other conditions.

### Wood Plate Connection



### Column Connection



**DO NOT** overhang seat cuts on beams beyond inside face of support member

# MULTIPLE-MEMBER CONNECTIONS FOR SIDE-LOADED BEAMS

## L17 Factored Uniform Load—Maximum Factored Uniform Load Applied to Either Outside Member (PLF)

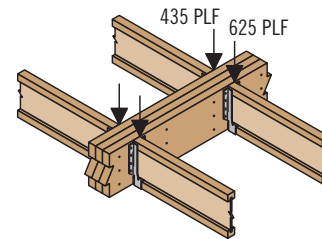
| Fastener Type                          | Location      | Number of Rows   | Fastener On-Centre Spacing | Fastener Pattern              |                               |                               |                              |                              |                              |
|--|---------------|------------------|----------------------------|-------------------------------|-------------------------------|-------------------------------|------------------------------|------------------------------|------------------------------|
|  |               |                  |                            | Assembly A<br>3½" wide, 2-ply | Assembly B<br>5¼" wide, 3-ply | Assembly C<br>5¼" wide, 2-ply | Assembly D<br>7" wide, 3-ply | Assembly E<br>7" wide, 2-ply | Assembly F<br>7" wide, 4-ply |
| 10d (0.128" x 3") Nail <sup>(1)</sup>  | As shown      | 2 <sup>(5)</sup> | 12"                        | 575                           | 430                           | 430                           | 385                          |                              |                              |
|  |               | 3                | 12"                        | 865                           | 650                           | 650                           | 575                          |                              |                              |
| ½" A307 Through Bolt <sup>(2)(3)</sup> | —             | 2                | 24"                        | 780                           | 585                           | 880                           | 780                          | 1,560                        | 520                          |
|  |               |                  | 19.2"                      | 975                           | 730                           | 1,095                         | 975                          | 1,950                        | 650                          |
|  |               |                  | 16"                        | 1,170                         | 880                           | 1,315                         | 1,170                        | 2,340                        | 780                          |
| Screw Length ▶                         |               |                  |                            | 3½"                           | 3½"                           | 3½"                           | 3½"                          | 6"                           | 6"                           |
| SDS <sup>(3)</sup>                     | As shown      | 2                | 24"                        | 870                           | 655                           | 655                           | 580                          | 2,040                        | 680                          |
|  |               |                  | 19.2"                      | 1,090                         | 815                           | 815                           | 725                          | 2,550                        | 850                          |
|  |               |                  | 16"                        | 1,305                         | 980                           | 980                           | 870                          | 3,060                        | 1,020                        |
| USP WS <sup>(3)</sup>                  | As shown      | 2                | 24"                        | 905                           | 680                           | 680                           | 605                          |                              | 765 <sup>(6)</sup>           |
|  |               |                  | 19.2"                      | 1,130                         | 850                           | 850                           | 755                          |                              | 960 <sup>(6)</sup>           |
|  |               |                  | 16"                        | 1,355                         | 1,015                         | 1,015                         | 905                          |                              | 1,150 <sup>(6)</sup>         |
| Screw Length ▶                         |               |                  |                            | 3¾"                           | 5"                            | 3¾"                           | 6¾"                          | 6¾"                          | 6¾"                          |
| TrussLOK <sup>(3)</sup>                | One side only | 2                | 24"                        | 840                           | 610                           | 630                           | 540                          | 810                          | 540                          |
|  |               |                  | 19.2"                      | 1,050                         | 760                           | 790                           | 675                          | 1,015                        | 675                          |
|  |               |                  | 16"                        | 1,260                         | 910                           | 945                           | 810                          | 1,215                        | 810                          |
| SDW22 <sup>(3)(4)</sup>                | One side only | 2                | 24"                        | 680                           | 625                           | 585                           | 555                          | 1,140                        | 555                          |
|  |               |                  | 19.2"                      | 850                           | 780                           | 730                           | 690                          | 1,425                        | 690                          |
|  |               |                  | 16"                        | 1,020                         | 935                           | 880                           | 830                          | 1,710                        | 830                          |

- (1) Nailed connection values may be doubled for 6" on-centre or tripled for 4" on-centre nail spacing.  
 (2) Washers required. Bolt holes to be ⅙" maximum.  
 (3) Factored resistance for 24" on-centre bolted or screwed connection values may be doubled for 12" on-centre spacing.  
 (4) When loading the head side of a SDW22 screw, assemblies A, B, D, and F can be increased by 15%.  
 (5) For beams up to 14" deep, maximum.  
 (6) Assembly F is not recommended for TimberStrand® LSL or Parallam® PSL.

### General Notes for Side-Loaded Beam Tables

- Connections are based on Limit States Design per CSA O86.
- Use specific gravity of 0.5 when designing lateral connections.
- Values listed are for standard term loading.
- When fasteners are required on both sides, stagger fasteners on the second side so they fall halfway between fasteners on the first side.
- Verify adequacy of beam in allowable load tables on pages 5–9.
- 7" wide beams should be side-loaded only when loads are applied to both sides of the members (to minimize rotation).
- Minimum end distance for bolts and screws is 6".
- Beams wider than 7" require special consideration by the design professional of record.

### Uniform Load Design Example



First, check load tables on pages 5–9 to verify that three pieces can carry the total factored load of 1,060 plf with proper live load deflection criteria. Total factored load = (1.25 x dead load) + (1.5 x live load). Maximum factored load applied to either outside member is 625 plf. For an assembly of three 1¾" plies (Assembly B), two rows of 10d (0.128" x 3") nails at 12" on-centre is good for only 430 plf. Therefore, use three rows of 10d (0.128" x 3") nails at 12" on-centre (good for 650 plf).

**Alternatives:** Two rows of ½" bolts or 5" TrussLOK® screws at 19.2" on-centre.

# MULTIPLE-MEMBER CONNECTIONS FOR SIDE-LOADED BEAMS

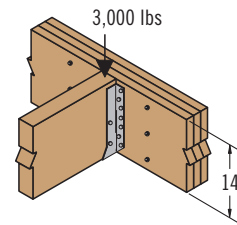
## L18 Factored Point Load—Maximum Factored Point Load Applied to Either Outside Member (lbs)

| Fastener Type                       | Location      | Number of Fasteners per Side | Fastener Pattern              |                               |                               |                              |                              |                              |
|-------------------------------------|---------------|------------------------------|-------------------------------|-------------------------------|-------------------------------|------------------------------|------------------------------|------------------------------|
|                                     |               |                              | Assembly A<br>3½" wide, 2-ply | Assembly B<br>5¼" wide, 3-ply | Assembly C<br>5¼" wide, 2-ply | Assembly D<br>7" wide, 3-ply | Assembly E<br>7" wide, 2-ply | Assembly F<br>7" wide, 4-ply |
| 10d (0.128" x 3") Nail              | As shown      | 6                            | 1,730                         | 1,295                         | 1,295                         |                              |                              |                              |
|                                     |               | 12                           | 3,455                         | 2,590                         | 2,590                         | 2,305                        |                              |                              |
|                                     |               | 18                           | 5,185                         | 3,890                         | 3,890                         | 3,455                        |                              |                              |
|                                     |               | 24                           | 6,910                         | 5,185                         | 5,185                         | 4,610                        |                              |                              |
| ½" A307 Through Bolt <sup>(1)</sup> | -             | 4                            | 3,120                         | 2,340                         | 3,510                         | 3,120                        | 6,240                        | 2,080                        |
|                                     |               | 6                            | 4,680                         | 3,510                         | 5,265                         | 4,680                        | 9,360                        | 3,120                        |
|                                     |               | 8                            | 6,240                         | 4,680                         | 7,020                         | 6,240                        | 12,480                       | 4,160                        |
|                                     |               | Screw Length ▶               | 3½"                           | 3½"                           | 3½"                           | 3½"                          | 6"                           | 6"                           |
| SDS                                 | As shown      | 4                            | 3,480                         | 2,610                         | 2,610                         | 2,320                        | 8,160                        | 2,720                        |
|                                     |               | 6                            | 5,220                         | 3,915                         | 3,915                         | 3,480                        | 12,240                       | 4,080                        |
|                                     |               | 8                            | 6,960                         | 5,220                         | 5,220                         | 4,640                        | 16,320                       | 5,440                        |
| USP WS                              | As shown      | 4                            | 3,615                         | 2,710                         | 2,710                         | 2,410                        |                              | 3,065 <sup>(3)</sup>         |
|                                     |               | 6                            | 5,425                         | 4,070                         | 4,070                         | 3,615                        |                              | 4,600 <sup>(3)</sup>         |
|                                     |               | 8                            | 7,230                         | 5,425                         | 5,425                         | 4,820                        |                              | 6,135 <sup>(3)</sup>         |
|                                     |               | Screw Length ▶               | 3¾"                           | 5"                            | 3¾"                           | 6¾"                          | 6¾"                          | 6¾"                          |
| TrussLOK®                           | One side only | 4                            | 3,360                         | 2,430                         | 2,520                         | 2,160                        | 3,240                        | 2,160                        |
|                                     |               | 6                            | 5,040                         | 3,645                         | 3,780                         | 3,240                        | 4,860                        | 3,240                        |
|                                     |               | 8                            | 6,720                         | 4,860                         | 5,040                         | 4,320                        | 6,480                        | 4,320                        |
| SDW22 <sup>(2)</sup>                | One side only | 4                            | 2,720                         | 2,490                         | 2,340                         | 2,215                        | 4,560                        | 2,215                        |
|                                     |               | 6                            | 4,080                         | 3,735                         | 3,510                         | 3,320                        | 6,840                        | 3,320                        |
|                                     |               | 8                            | 5,440                         | 4,980                         | 4,680                         | 4,425                        | 9,120                        | 4,425                        |

- (1) Washers required. Bolt holes to be ⅛" maximum.  
 (2) When loading the head side of a SDW22 screw, assemblies A, B, D, and F can be increased by 15%.  
 (3) Assembly F is not recommended for TimberStrand® LSL or Parallam® PSL.

### Point Load Design Example

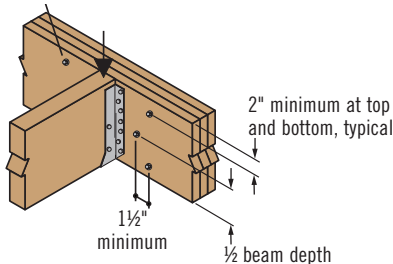
First, verify that a 3-ply, 1¼" x 14" beam can support the factored 3,000 lb point load and all other loads applied. The factored 3,000 lb point load is being transferred to the beam with a face mount hanger. For an assembly of three 1¼" plies (Assembly B), six 5"-long TrussLOK® screws are good for 3,645 lbs with a face mount hanger.



### Point Load Connector Spacing

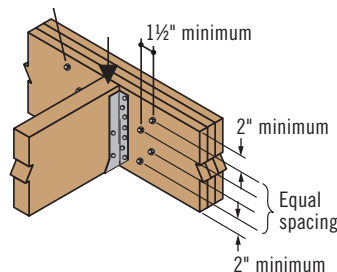
#### 4- or 6-Bolt or Screw Connection

½" A307 through bolt, or SDS, USP WS, TrussLOK®, or SDW screw, typical



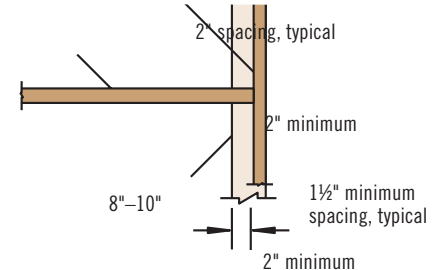
#### 8-Bolt or Screw Connection

½" A307 through bolt, or SDS, USP WS, TrussLOK®, or SDW screw, typical



#### Nail Connection

10d (0.128" x 3") nails, typical. Stagger to prevent splitting.



L19 Minimum beam depth is 9½" for ½" diameter bolts

L20 Minimum beam depth is 11½" for ½" diameter bolts

L21 There must be an equal number of nails on each side of the connection

# MULTIPLE-MEMBER CONNECTIONS FOR TOP-LOADED BEAMS

## Fastener Installation Requirements

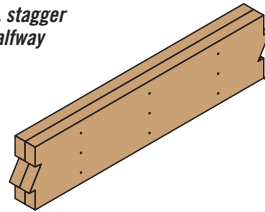
| Piece Width | Number of Plies    | Fastener            |                              |                  |                  |            |                    |
|-------------|--------------------|---------------------|------------------------------|------------------|------------------|------------|--------------------|
|             |                    | Type <sup>(1)</sup> | Min. Length                  | # Rows           | O.C. Spacing     | Location   |                    |
| 1 3/4"      | 2                  | 10d nails           | 3"                           | 3 <sup>(2)</sup> | 12"              | One side   |                    |
|             |                    | 12d-16d nails       | 3 3/4"                       | 2 <sup>(2)</sup> |                  |            |                    |
|             |                    | Screws              | 3 3/8" or 3 1/2"             | 2                | 24"              |            |                    |
|             | 3                  | 10d nails           | 3"                           | 3 <sup>(2)</sup> | 12"              | Both sides |                    |
|             |                    |                     | 12d-16d nails                | 3 3/4"           |                  |            | 2 <sup>(2)</sup>   |
|             |                    | Screws              | 3 3/8" or 3 1/2"             | 2                | 24"              | Both sides |                    |
|             |                    |                     | 5"                           |                  |                  | One side   |                    |
|             |                    | 4                   | 10d nails <sup>(3)</sup>     | 3"               | 3 <sup>(2)</sup> | 12"        | One side (per ply) |
|             |                    |                     | 12d-16d nails <sup>(3)</sup> | 3 3/4"           | 2 <sup>(2)</sup> |            |                    |
| Screws      | 5" or 6"<br>6 3/4" |                     | 2                            | 24"              | Both sides       |            |                    |
|             |                    | One side            |                              |                  |                  |            |                    |
| 3 1/2"      | 2                  | Screws              | 5" or 6"<br>6 3/4"           | 2                | 24"              | Both sides |                    |
|             |                    |                     |                              |                  |                  | One side   |                    |
|             |                    | 1/2" bolts          | 8"                           |                  |                  | —          |                    |

(1) 10d nails are 0.128" diameter; 12d-16d nails are 0.148"-0.162" diameter; screws are SDS, USP WS, TrussLOK® or SDW.

(2) An additional row of nails is required with depths of 14" or greater.

(3) When connecting 4-ply members, nail each ply to the other and offset nail rows by 2" from the rows in ply below.

When fasteners are required on both sides, stagger fasteners on the second side so they fall halfway between fasteners on the first side.



Load must be applied evenly across entire beam width. Otherwise, use connections for side-loaded beams

**L6** Multiple pieces can be nailed or bolted together to form a header or beam of the required size, up to a maximum width of 7"

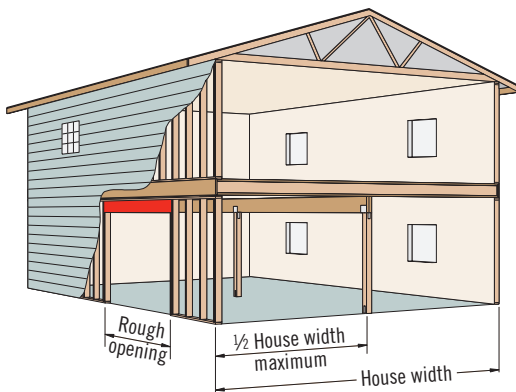
## Metric to Imperial Conversions

| Metric Unit       | Imperial Conversion                       |
|-------------------|---|
| 1 kN              | 0.2248 kip                                |
| 1 N               | 0.2248 lb                                 |
| 1 m               | 3.281 ft                                  |
| 1 mm              | 0.0394 in.                                |
| 1 kg              | 2.205 lb mass                             |
| 1 N · m           | 0.7376 lb · ft                            |
| 1 N · m           | 8.851 lb · in.                            |
| 1 mm <sup>4</sup> | 2.402 x 10 <sup>-6</sup> in. <sup>4</sup> |
| 1 Pa              | 0.0209 lb/ft <sup>2</sup>                 |
| 1 kPa             | 0.1450 lb/in. <sup>2</sup>                |

## Imperial to Metric Conversions

| Imperial Unit         | Metric Conversion                        |
|-----------------------|--|
| 1 kip                 | 4.448 kN                                 |
| 1 lb                  | 4.448 N                                  |
| 1 ft                  | 0.3048 m                                 |
| 1 in.                 | 25.40 mm                                 |
| 1 lb mass             | 0.4536 kg                                |
| 1 lb · ft             | 1.356 N · m                              |
| 1 lb · in.            | 0.1130 N · m                             |
| 1 in. <sup>4</sup>    | 0.4162 x 10 <sup>6</sup> mm <sup>4</sup> |
| 1 lb/ft <sup>2</sup>  | 47.88 Pa                                 |
| 1 lb/in. <sup>2</sup> | 6.895 kPa                                |

## HEADER DESIGN EXAMPLE PROBLEM



Determine the size of 1.55E TimberStrand® LSL header required for a 10' rough opening for the given loads and assumptions:

- House width = 36'
- Trussed roof with 24" roof truss overhangs
- Roof Load = 30 psf snow + 15 psf dead
- Floor Load = 40 psf live + 12 psf dead

Calculated unfactored plf loads acting on the beam (20' roof and 9' floor tributary):

- Snow = 600 plf
- Floor = 360 plf
- Dead = 490 plf (includes wall load at 80 plf)

Next, calculate design loads per 2010 NBCC load combinations (primary load and companion load action).

### 1. Unfactored live load:

Case 2:  $1.0 \times 360 + 0.5 \times 600 = 660$  plf

Case 3:  $1.0 \times 600 + 0.5 \times 360 = 780$  plf

Therefore use Case 3 at 780 plf

### 2. Unfactored total load:

For Cases 2 and 3:

Unfactored dead load =  $1.0 \times 490 = 490$  plf

Unfactored total load =  $780 \text{ plf} + 490 \text{ plf} = 1,270$  plf

### 3. Factored total load:

Case 2:  $1.5 \times 360 + 0.5 \times 600 = 840$  plf

Case 3:  $1.5 \times 600 + 0.5 \times 360 = 1,080$  plf

Therefore use Case 3 at 1,080 plf

Factored dead load =  $1.25 \times 490 = 613$  plf

Factored total load =  $1,080 + 613 = 1,693$  plf

Try using a 3 1/2" x 11 3/8" 1.55E TimberStrand® LSL header. See page 5 of this guide.

| Span | Condition                   | 1.55E Grade  |         |         |         |              |         |          |         |
|------|-----------------------------|--------------|---------|---------|---------|--------------|---------|----------|---------|
|      |                             | 1 3/4" Width |         |         |         | 3 1/2" Width |         |          |         |
|      |                             | 9 1/2"       | 11 1/2" | 14"     | 14"     | 9 1/2"       | 11 1/2" | 14"      | 16"     |
| 10'  | Unfactored Resistance (LL)  | 261          | 487     | 760     | 523     | 974          | 1,520   | 2,154    | 785     |
|      | Unfactored Resistance (TL)  | 387          | 724     | *       | 775     | 1,449        | *       | *        | 1,16    |
|      | Total Factored Resistance   | 686          | 1,052   | 1,442   | 1,373   | 2,105        | 2,885   | 3,725    | 2,055   |
|      | Min. End/Int. Bearing (in.) | 1.5/3.8      | 2.3/5.8 | 3.2/9.7 | 1.5/3.8 | 2.3/5.8      | 3.2/7.9 | 4.1/10.2 | 1.5/3.8 |
|      | Résistance non pondérée (S) | 155          | 293     | 464     | 311     | 587          | 928     | 1,334    | 488     |
|      | (TL)                        | 228          | 441     | 688     | 456     | 868          | 1,277   | 464      |         |

### Summary:

1. Unfactored Resistance (LL) = 974 > 780 OK

2. Unfactored Resistance (TL) = 1,449 > 1,270 OK

3. Total Factored Resistance = 2,106 > 1,693 OK

Therefore, a 3 1/2" x 11 3/8" 1.55E TimberStrand® LSL header is acceptable. The beam requires 2.6" of bearing at end supports and 6.5" of bearing at intermediate support.



# PARALLAM® PSL COLUMNS

## Axial Factored Resistances (lbs) for 1.8E Parallam® PSL

| Column Bearing Type | Effective Column Length | Column Size                  |           |          |           |          |         |
|---------------------|-------------------------|------------------------------|-----------|----------|-----------|----------|---------|
|                     |                         | 3½" x 3½"                    | 3½" x 5¼" | 3½" x 7" | 5¼" x 5¼" | 5¼" x 7" | 7" x 7" |
| On Column Base      | 6'                      | 19,365                       | 29,020    | 38,435   | 54,735    | 72,980   | 100,000 |
|                     | 7'                      | 16,245                       | 24,365    | 32,490   | 51,350    | 68,470   | 100,000 |
|                     | 8'                      | 13,305                       | 19,955    | 26,610   | 47,425    | 63,230   | 96,390  |
|                     | 9'                      | 10,875                       | 16,315    | 21,750   | 43,155    | 57,540   | 92,070  |
|                     | 10'                     | 8,900                        | 13,350    | 17,800   | 38,740    | 51,655   | 87,170  |
|                     | 12'                     | 6,015                        | 9,025     | 12,030   | 29,760    | 39,680   | 76,175  |
|                     | 14'                     | 4,145                        | 6,215     | 8,275    | 22,775    | 30,370   | 64,230  |
|                     | 16'                     | Slenderness ratio exceeds 50 |           |          | 17,480    | 23,310   | 52,685  |
|                     | 18'                     |                              |           |          | 13,500    | 17,995   | 43,130  |
|                     | 20'                     |                              |           |          | 10,510    | 14,010   | 35,345  |
|                     | 22'                     |                              |           |          |           |          | 29,040  |
|                     | 24'                     |                              |           |          |           | 23,945   |         |

The column values listed are for dry-service conditions ONLY. When wet-service conditions exist, contact your Weyerhaeuser representative for other product solutions.

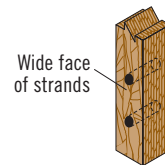


DO NOT install bolts or screws into the narrow face of strands

### General Notes

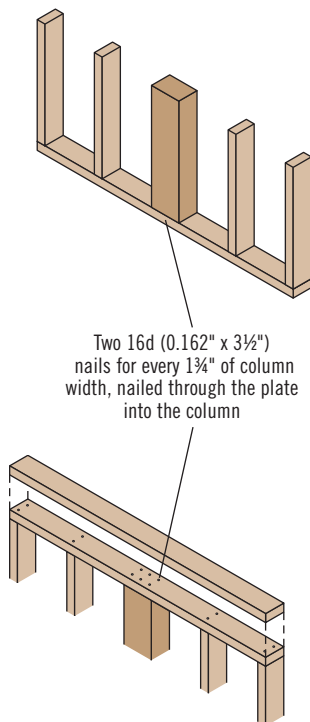
- Tables are based on:
  - Solid, one-piece column members used in dry-service conditions.
  - Bracing in both directions at column ends.
  - CSA O86.
  - Simple columns with axial loads only. For side loads or other combined bending and axial loads, see the CSA O86 provisions.
  - $K_b = 1.0$ , where the specified snow or live load is greater than the specified dead load. For other load cases, use Weyerhaeuser software.
- Factored resistances have been adjusted to accommodate the worst case of the following eccentric conditions: 1/6 of column thickness (first dimension) or 1/6 of column width.
- Beams and columns must remain straight to within  $5L/4608$  (in.) of true alignment. L is the unrestrained length of the member in feet.

For column specified strengths see page 4.

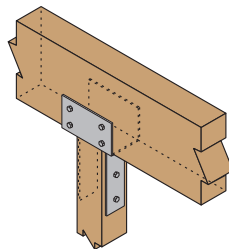


In order to use the manufacturer's published capacities when designing column caps, bases, or holdowns for uplift, the bolts or screws must be installed perpendicular to the wide face of strands, as shown above.

### Top or Bottom Plate Connection

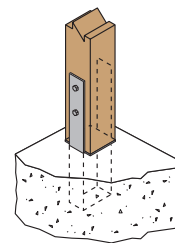


### Beam on Column Cap



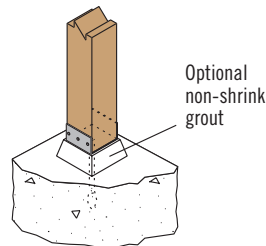
P1

### Column Base



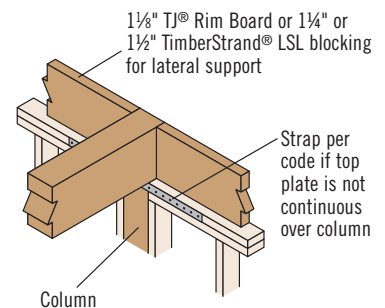
P2

### Elevated Column Base



P3

### Beam on Column



L1





## WE CAN HELP YOU BUILD SMARTER

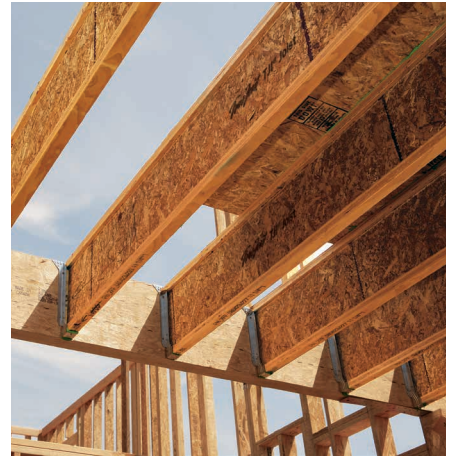
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